

THE AUTOMOBILE

BIG TOUR IS PROVING THE ENDURANCE OF THE AMERICAN AUTOMOBILE

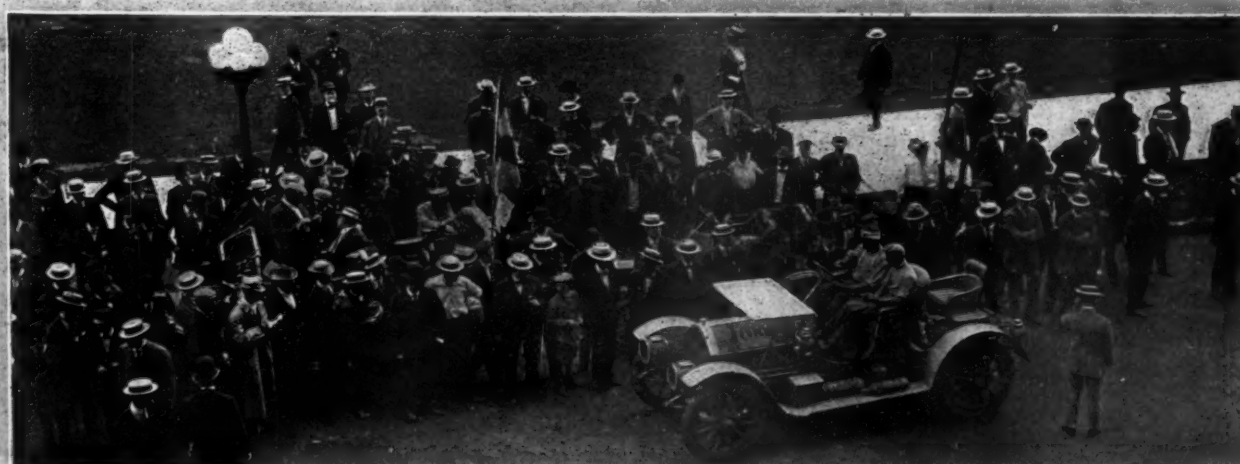


BY A. G. BATCHELDER

CHICAGO, July 15.—Somewhat impatient from its two-day in-nings of idleness, the autoing cavalcade this morning resumed its strenuous—the word fits exactly—tour, for a tour can be an endurance contest even though a contest is not necessarily a tour. It might be said right here, and said unmistakably, that any American automobile—the importers ignored the opportunity—which survives this A. A. A. 1907 tour, either with a clean score or with minor penalizations, will have just cause to declaim from the housetops its staunchness and reliability in meeting extraordinary touring conditions. And in this country, compared with the general run of European highways, our roads when traveled for any great distance usually require these extraordinary conditions. They cannot be escaped.

Pleasure is incidental to this fourth annual event of the Three A's, and while there may be several who looked upon the affair as a jaunt rather than in the light of a contest, the greater part of the participants had no false notions as to the nature of the 1,570-mile ride that began in Cleveland and will end in New York City. It is not a mere struggle for the possession of the Glidden and Hower trophies, but the real prizes sought are the commendation and patronage of the automobile-buying public.

Forty-two of sixty-one automobiles faultlessly survived the hard Cleveland-Toledo section, the more difficult Toledo-South Bend run, and the South Bend-Chicago trip, which had its greatest task in the plowing of the quagmires of the city's squalid South Side. A dozen non-contestants, unfettered by rules and



WHERE THE OFFICIAL CLOCKERS CHECKED THE CARS ON THEIR ARRIVAL AT THE AUDITORIUM ANNEX, CHICAGO.



PART OF THE LINE SNAKING ITS WAY THROUGH THE SAND.

controls, extracted considerable enjoyment during the three days. When this endurance tour—that is the proper designation—is over and its results are summed up, it will be recognized as having been beneficial to the industry and pastime, for the more perfect the automobile of the maker the more perfect is the pleasure of the user. From these long runs—no matter if the rules have been uneven, the rulings of the officials subject to criticism, and the roads good, bad and indifferent—every participant has learned something. If a manufacturer, he discovered weaknesses of construction which he quickly corrected; if a user, it may have caused him to discard what he owned for something which he had observed contained greater reliability.

The interest of the public is keen in the automobile, and through Ohio and Indiana the 1907 touring brigade has become aware of the fact that many a farmer met with along the road no longer regards the motor-driven vehicle as an interloper, but, his horses now seldom scared, he has in mind the buying of a car himself, and is looking about to find the one which best will suit his needs. Now and then there was to be seen the thrifty agriculturist who already had invested in a car, over which he betrayed the pride of ownership.

There have been courtesy and greetings all along the way, in the country as well as in the city, and an occasional banner has accentuated the welcome. It is as hard as usual to disabuse the average onlooker at the flying procession of the idea that there is no race, and he will persist in urging one to "hit her up," trying to lend encouragement by saying that the car in front has just passed. Occasionally there is a brush on the road, despite the rules, but as a whole the entire caravan, including the free lances, are considerate of other users of the highway.

It was not to be expected that Chairman Hower would find approval from all quarters, and his desire to shoulder the entire



HELD UP AT THE DRAWBRIDGE OUTSIDE SOUTH CHICAGO.

burdens of direction aroused some antagonism even in his own committee, so much that L. E. Myers, the Chicago member, handed his tour badge to the chairman at South Bend. But the chairman is a worker, and the summary of the tour will have to tell whether he has accomplished his somewhat self-imposed wholesale task in a manner satisfactory to the A. A. A.

Since the tourists with few exceptions have trade affiliations of some character, a great many hiked for the places of their Chicago representatives soon after their arrival here, and as a result the entertaining was scattered in many directions. But there were, and will be during the remainder of the tour, those who prefer long hours of sleep instead of the well-meant attentions of the entertainers in the various cities. Rest is a fine form of enjoyment after one has swallowed dust galore and bumped the bumps for many painful hours. No, this is not a pleasure tour, and 'tis fortunate that a few gained a false impression of what the thing is and was meant to be.

Back to South Bend will be easy, from there to Indianapolis is good going; the roadway to Columbus should be satisfactory, and on to Canton there will be average traveling. But to Pittsburgh strenuousness will be apparent, and from Smoketown to Shady Bedford there'll be a ride which will make the Springs a blessed spot to reach on Saturday night for a stop over Sunday.

Yes, the tour is worth while at this time. About next year—that is a different matter. Many are already agreed that there should be a next year—that the tour is of decided benefit to the industry as a whole, and not a few are keenly observing conditions and the working of the present set of rules and regulations, with a view to their improvement when the opportunity comes. There is little doubt that if these wise ones get together and air their views there will be considerable to be said—but then, of course, that's too long a story.



FORD AND THOMAS LOST IN THE SOUTH CHICAGO MORASS.



MRS. J. N. CUNEO'S RAINIER CHECKS IN ON TIME.



DONOR GLIDDEN HALTS WITH CHAIRMAN HOWER UNDER THE BANNER FLUNG TO THE BREEZE IN HIS HONOR.

No.	Entrant	Car	H.P.	Club
3	R. D. Garden	Pierce	40-45	New York Motor Club.
14	Phil S. Flynn	Pierce	40-45	Pittsburg Automobile Club.
17	F. S. Day	Pierce	40-45	Buffalo Automobile Club.
21	T. P. Jones	Pierce	40-45	Pittsburg Automobile Club.
27	A. Kumpf	Pierce	40-45	Buffalo Automobile Club.
9	G. S. Salzman	Thomas Flyer	60	Buffalo Automobile Club.
11	M. Hallowell	Thomas Flyer	60	Buffalo Automobile Club.
22	H. H. Perkins	Packard	30	Pittsburg Automobile Club.
44	Gus G. Buse	Packard	25	Buffalo Automobile Club.
33	R. M. Owen	Reo	16	Automobile Club of America.
45	A. M. Robbins	Aerocar	40	New York Motor Club.
47	Walter C. White	White	30	Cleveland Automobile Club.
48	A. J. Scaife	White	30	New York Motor Club.
49	Chas. H. Burman	Peerless	30	Cleveland Automobile Club.
50	W. C. Straub	Peerless	30	Cleveland Automobile Club.
54	Edward Noble	Haynes	50	Chicago Automobile Club.
55	F. N. Nutt	Haynes	50	Chicago Automobile Club.
24	W. M. Lewis	Mitchell	30	Chicago Automobile Club.
25	S. Black	Lozier	40	Cleveland Automobile Club.
28	P. Gaeth	Gaeth	35	Cleveland Automobile Club.
29	G. P. Moore	Welch	50	Pittsburg Automobile Club.
31	E. S. Lea	Walter	40	New York Motor Club.
32	W. J. Howard	Oldsmobile	40	New York Motor Club.
38	H. C. Tillotson	Stoddard-Dayton	35	Chicago Automobile Club.
39	A. N. Jervis	Berliet	40	New York Motor Club.
41	I. C. Kirkham	Maxwell	16-20	Westchester Motor Club.
42	R. H. Tucker	Royal Tourist	45	Cleveland Automobile Club.
19	J. W. Moore	Premier	24	Automobile Club of America.
10	F. J. Pardee	American Mors	45	St. Louis Automobile Club.
15	G. Cabanne	American Mors	25-30	St. Louis Automobile Club.

SCORES WHICH ARE MORE OR LESS DAMAGED.

No.	Entrant	Car	H. P.	Club	First Day	Second Day	Third Day	Fourth Day	Fifth Day	Total
26	A. Cuneo	Rainier	30-35	New York Motor Club	0	4	0	0	...	...
7	A. R. Welch	Welch	50	Automobile Club of Detroit	12	0	0	0	...	...
23	H. C. Shoemaker	Shoemaker	35-40	Cleveland Automobile Club	0	0	26	111 1/2*	...	...
34	R. L. Lockwood	Reo	16	New York Motor Club	0	22	0	212	...	...
12	R. D. Chapin	Thomas Forty	40	Automobile Club of Detroit	0	1	53	*	...	...
2	K. R. Otis	Pierce	60-65	Cleveland Automobile Club	0	out	...	...	...	...
1	N. H. Van Sicklen	Apperson	40-45	Chicago Automobile Club	0	23	142 6-7	out	...	...
16	Orrel A. Parker	Royal Tourist	45	Automobile Club of America	0	6	0	...	...	...
36	E. F. Finch	Pungs-Finch	40	Automobile Club of Detroit	0	out	...	...	...	...
37	A. L. Peterson	Meteor	50	Cleveland Automobile Club	0	117	160	0	...	...
43	J. W. Mears	Acme	40	New York Motor Club	0	106	0	0	...	...
6	T. J. Clark	Packard	30	Chicago Automobile Club	0	154	142 6-7	out	...	...
56	F. E. Dayton	Columbia	40-45	Chicago Automobile Club	0	0	224	0	...	...
58	L. S. Tyler	Maxwell	16-20	Westchester Motor Club	0	0	8	...	...	...
59	Chas A. Fleming	Maxwell	16-20	Westchester Motor Club	0	0	333 1-3*	...	...	...
30	H. M. Coale	Autocar	30	New York Motor Club	0	0	0	0	?	...
51	J. H. Becker	Elmore	30-35	Cleveland Automobile Club	0	0	0	0	?	...
46	Geo. P. Barr	Aerocar	40	Automobile Club of Detroit	0	0	0	104	...	...
35	H. A. Rainey	Reo	16	Automobile Club of America	0	0	0	1000	out	...

* Joined non-contestants.

THE TEAM CONTEST FOR THE GLIDDEN TROPHY

NEW YORK MOTOR CLUB		CLEVELAND AUTOMOBILE CLUB		CHICAGO AUTOMOBILE CLUB		AUTOMOBILE CLUB OF BUFFALO	
3	Pierce	2	Pierce	1	Apperson	9	Thomas Flyer
26	Rainier	25	Lozier	6	Packard	11	Thomar Flyer
31	Walter	28	Gaeth	24	Mitchell	17	Pierce
39	Berliet	37	Meteor	38	Stoddard-Dayton	27	Pierce
43	Acme	42	Royal Tourist	54	Haynes	44	Packard
45	Aerocar	49	Peerless	55	Haynes		
48	White	50	Peerless	56	Columbia		
30	Autocar	23	Shoemaker				
32	Oldsmobile	47	White				
34	Reo						
PITTSBURG AUTOMOBILE CLUB		DETROIT AUTOMOBILE CLUB		AUTOMOBILE CLUB OF AMERICA		WESTCHESTER MOTOR CLUB	
14	Pierce	7	Welch	16	Royal Tourist	41	Maxwell
21	Pierce	12	Thomas Forty	33	Reo	38	Maxwell
22	Packard	36	Pungs-Finch	35	Reo	59	Maxwell
29	Welch	46	Aerocar	19	Premier		

CLUB	First Day	Second Day	Third Day	Fourth Day	Fifth Day	Total
Buffalo Automobile Club.....	0	0	0	0	.....	.....
Pittsburg Automobile Club.....	0	0	0	0	.....	.....
New York Motor Club.....	0	13 1-5	0	21 1/2	.....	.....
Cleveland Automobile Club.....	0	124 1-9	20 2-3	111 1/2	.....	.....
Automobile Club of America.....	0	1 1-2	250	250	.....	.....
Detroit Automobile Club.....	3	250 1-4	13 1-4	276	.....	.....
Chicago Automobile Club.....	0	25 2-7	317 5-7	0	.....	.....
Westchester Motor Club.....	0	0	336	0	.....	.....

THE RUNABOUT CONTENDERS FOR THE HOWER TROPHY

No.	Entrant	Car	H. P.	Club
100	A. E. Hughes.....	Pierce.....	40-45	Rhode Island Automobile Club.
102	H. E. Coffin.....	Thomas Forty.....	40	Automobile Club of Detroit.
103	H. O. Smith.....	Premier.....	24	Indianapolis Automobile Club.
104	G. S. Smith.....	Stoddard-Dayton.....	35	Quaker City Motor Club.
108	H. K. Sheridan.....	White.....	30	Cleveland Automobile Club.
111	Wallace Owen.....	Pennsylvania.....	35	Cleveland Automobile Club.
115	W. A. Badger*.....	Cleveland.....	40	Cleveland Automobile Club.

* Retired at Chicago for personal reasons.

THOSE WHICH FILTERED BY THE WAY.

No.	Entrant	Car	H. P.	Club	First Day	Second Day	Third Day	Fourth Day	Fifth Day	Total
112	J. W. Haynes.....	Dragon.....	24	Chicago Automobile Club....	0	12	0	0	...	...
113	H. P. Branstetter.....	Dragon.....	24	Chicago Motor Club.....	0	out	...	...	...	...
106	R. G. Kelsey.....	Matheson.....	40-45	Long Island Automobile Club	0	56	0	944	out	...
109	C. S. Johnston.....	Continental.....	35	American Automobile Asso...	24	35	0	0	...	...
107	H. C. Stutz.....	Marion.....	24	American Automobile Asso..	0	0	0	0	out	...

NON-CONTESTANTS ACCOMPANYING TOUR.

No.	Entrant	Car	H. P.	Service
4	H. A. Grant.....	Maxwell.....	36-40	Official.
13	G. M. Davis.....	Thomas Flyer.....	60	Press.
90	Packard Company.....	Packard.....	30	Press.
91	Aerocar Company.....	Aerocar.....	40	THE AUTOMOBILE.
92	F. E. Spooner.....	Haynes.....	50	Press.
98	G. A. Weidely.....	Premier.....	50	Official.
99	F. B. Hower.....	Pierce.....	50	Chairman.
40	R. H. Johnston.....	White.....	18	Press.
60	Wm. Turner.....	Thomas Flyer.....	60	Goodrich Tires.
61	H. G. Smith.....	White.....	24	Diamond Tires.
52	W. G. Houck.....	Deere.....	40	Pleasure.
57	A. D. Cressler.....	Thomas Flyer.....	60	Pleasure.
12	R. D. Chapin.....	Thomas Forty.....	40	Pleasure.
105	J. E. Zimmerman.....	Locomobile.....	35	Pleasure.
114	J. C. Barclay.....	Thomas Forty.....	..	Warner.
16	Orl A. Parker.....	Royal Tourist.....	45	Pleasure
59	Charles A. Fleming.....	Maxwell.....	16-20	Pleasure
12	R. D. Chapin.....	Thomas Forty.....	....	Pleasure



SOMETIMES THE ROADS WERE EXCELLENT, LIKE THIS.



BUT MORE FREQUENTLY THEY WERE BAD, LIKE THIS.



By Alfred Reeves.

General Manager A. A. A. T.

PARTICIPANTS in the A. A. A. tour are agreed that the affair now in progress is the greatest from every point of view that has ever been held in this country. While, in my opinion, some changes in the rules can profitably be made for 1908, it must be admitted that the present ones have worked out much better than many expected. While it is true there is some complaint about fast schedules over execrable roads, there was a general understanding that the affair was not to be of the lawn tennis order, but rather a tour that would test cars and drivers. Nevertheless the nine-hour schedule for the 166 miles from Toledo to South Bend, announced the night before and not lengthened after a five-hour rain, was too fast for safety, to say nothing of comfort, and was an injustice to the cars of 24-horsepower or less. That distance over such roads in nine hours endangered everyone and cheered the hearts only of those driving road locomotives of the 60-horsepower type.

That this schedule was wrong is now admitted, and although each day will see a timetable fast enough to test cars, yet it will always be within the bounds of safety and within the speed limits of the various localities. Anything to the contrary would injure the pastime in every town through which the tour passes and tend to bring about legislation of the unfair sort that will affect the industry; and as 95 per cent. of all cars entered in the tour are from the trade with factory experts furnished for the others, the maker is entitled to some consideration.

It is absurd to believe that any great number of amateurs can be found who will slam their own cars over the roads on a time schedule, eating the proverbial "peck of dust" daily simply to participate in the Glidden contest.

After participating in these tours from their inception I have reached the conclusion that a pleasure jaunt and a test of cars cannot be combined. Moreover, I am convinced that no satisfactory set of rules or schedule of running can be promulgated unless it involves the factor of price. Primarily these contests are for the benefit of the public, and who will deny that possible buyers are most interested in knowing the best car they can get for a certain sum of money? Yet when a 16-horsepower car of \$1,250 is required to make the same time and comply with the same rules as a 60-horsepower machine costing \$6,500 it is unfair to the small car at the time, and unfair at the finish to the large car, which can boast of no

better performance than that supplied by the lower-priced one; albeit it was capable of accomplishing more where the smaller machine had been at its limit.

After giving the matter a little thought and noting the performances of cars on the run, it would appear as though cars selling for less than \$2,000 should be required to average fifteen miles an hour; those selling from \$2,000 to \$3,000 to make seventeen miles an hour, with nineteen miles for cars selling for \$3,000 or more, and a slight increase for the runabouts. In case of severe rains a slower schedule commensurate with road conditions could be enforced.

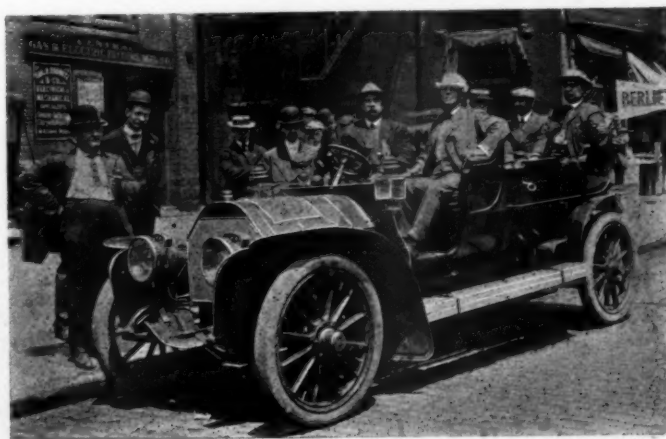
When one sees cars disqualified for replacing small parts, instead of allowing them to continue with a penalty, it would seem as though future tests should permit of small repairs such as might be done by an owner on an ordinary tour, charging some by a deduction of points. This involves the matter of observers, and I am free to say that observers are the most satisfactory where an award of any sort is to be made.

That a schedule of some sort is required to properly test cars is admitted. It should not be so fast as to cause the affair to degenerate into a road race, nor should it be so slow as to permit too much work to be done on cars. If a fast schedule is to be followed, no passengers or baggage should be required in the cars, and entrants should be permitted to do anything to help supply the speed.

Properly conducted tours help the industry, but unsanctioned racing on the public highways brings discredit on everyone concerned. Racing, however, is a fever that is contagious, and it can hardly be cured by any other measure than the providing of a pacemaker, who must not be passed by any contestant, but to whose time shall be added half an hour or so in favor of the competing cars to give them an opportunity for filling fuel tanks, oiling moving parts, replacing punctured tires and making slight repairs. The reliability of cars finishing under such conditions would admit of little argument.

The present tour is a wonderful demonstration of strength and reliability in American machines. Not a foreign car owner elected to undergo the test. Troubles have been of little moment, being mostly in bearings, springs and running gears. Of motor troubles there may be said to be none.

It seems to me that many American makers lose a grand



A. N. JERVIS' BERLIET, A "SEALED BONNET" GLIDDENITE.



COEY IN HIS THOMAS WINNING THE "24" AT HARLEM TRACK.

opportunity to study conditions by failing to either enter a car or to have a factory expert on the trip. The representative of a company which sold \$2,000,000 worth of cars last year stated publicly that they learned some way of improving their product in every contest of this sort and expected always to enter them.

Chairman Hower and Secretary Lewis of the A. A. A. touring board, with their assistants, have worked nobly and with commendable results. They will all learn much from this tour which doubtless will be reflected in the rules for the event of 1908.

THOMAS WINS CHICAGO'S TWENTY-FOUR HOUR.

CHICAGO, July 16.—C. A. Coey (Thomas) was the winner of the 24-hour race held on the Harlem track from 4:45 P.M. Friday to 4:45 P.M. Saturday. Coey's mileage is 846, which, owing to the poor condition of the track, was far below the 1,135 miles two-car record established three weeks ago by Ford machines at Detroit. Mongini (Matheson) was second with 842 miles; Wagoner (Haynes) third with 813 miles; Foster (Cadillac) fourth with 794 miles, and Zirber (Mitchell) fifth with a score of 719 miles. The attendance was large and more cars were never before seen at a track meet.

No sooner was the result announced than it was stated that a protest would be lodged by the Matheson representatives on the ground of inaccurate scoring, points specially mentioned in the document being "that the two Thomas cars were on the track together, both being scored by the officials; that for five laps no record was credited to the Matheson; that 75 per cent. of those present supposed that the Matheson had won." The matter may be brought before the Racing Board of the A. A. A. for adjudication.

A challenge has been issued to the winner by the White Company of Cleveland, conditions of the contest to be the same as on the Harlem track, with details to be settled at the convenience of both parties. Steam cars were barred from the 24-hour and also the sprint races.

Wretched track conditions are alone responsible for the low mileages recorded by the competing cars. The surface was so soft that deep furrows were plowed in the dirt, and the drivers

were obliged to follow these tracks to make any speed at all. To remain in the game any length of time called for almost superhuman efforts on the part of the drivers.

The Maxwell car, the famous "No. 13," remained on the track the greatest length of time and was running well until the twenty-third hour, when it was bumped into by Mongini's Matheson, sustaining a broken rear axle. After running three turns, a Pope-Toledo blew out a cylinder. The car was removed from the track, a new cylinder fitted, and on its return did forty-five miles in one hour—the fastest going of the day.

Some of the short sprints were abandoned owing to track conditions, the brief results of those which were held being as follows:

THREE-MILE EXHIBITION AGAINST TIME.

1. Haynes, 35-horsepower; driver, Miss Alice Tetzner.... 6:02

FIVE-MILE MATCH RACE.

1. Packard, 30-horsepower; driver, Otto Lehman..... 7:16
2. Jackson, 35-horsepower; driver, Burman.

JOHN CONDON STAKES, TEN MILES.

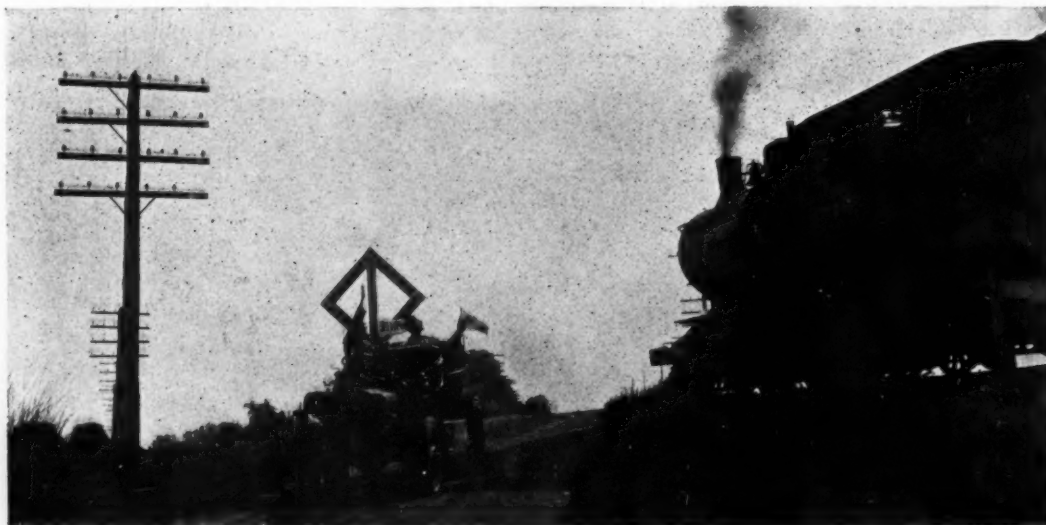
1. Apperson, 50-horsepower; driver, Phil Kirk..... 14:58 1-5
2. Packard, 30-horsepower; driver, Otto Lehman.
3. Haynes, 50-horsepower; driver, C. W. Birchwood.
4. Apperson, 50-horsepower; driver, Eddie Bald.

FIVE-MILE DASH, FREE-FOR-ALL.

1. Apperson, 50-horsepower; driver, Phil Kirk..... 6:32 1-5
2. Pope-Toledo, 50-horsepower; driver, George Schoeneck.
3. Apperson, 50-horsepower; driver, Eddie Bald.
4. Thomas, 60-horsepower; driver, C. A. Coey.
5. Jackson, 35-horsepower; driver, Burman.
6. Haynes, 50-horsepower; driver, C. W. Birchwood.

The meet was conducted under the auspices of the Chicago Automobile Club by the United States Automobile Racing Association, it being understood that the club was to supply the officials. In order to have scorers who would serve all night it was necessary to use hired men, and here is where the charge of incorrect scoring had its genesis. It is safe to say on the next occasion that this feature will have greater attention from the club and similar annoyances avoided.

On the other hand, however, it is definitely stated that the Matheson team did not receive credit for several miles because of illegal pick-ups. When Mongini was relieved by his teammate the latter would not wait until they were on an equality, but would sometimes run out on the track nearly an eighth of a mile ahead. He was not officially considered in the race until he was alongside his mate. There is a probability that the protest will be simply one of newspaper shouting only, because exact evidence seems to be wanting, though such protests naturally detract from the interest of the meet, and due precautions should be taken to guard against conditions which make them possible, in the interest of clean sport.

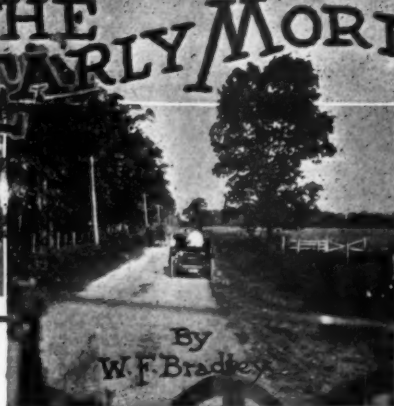


AN EXCHANGE OF GREETINGS BETWEEN THE PILOTS OF THE LARGE AND SMALL STEAMERS.

HOW THE PATHWAY IS MARKED IN THE EARLY MORN



COMMANDER LEWIS OF THE CONFETTI BRIGADE IN PREMIER "SIX."



THE STUDEBAKER WHICH ESCORTED US OUT OF SOUTH BEND.



MAXWELL CONFETTI CAR WITH LIEUT. MORT REEVES IN CHARGE.

ON the floor above the last feeble strains of a waltz were dying as one reluctant leg followed the other over the bed-edge in response to the unwelcome "Three forty-five, sir" call.

Laying the confetti for A. A. A. tourists is of necessity a natural occupation, appreciated by Chairman Hower, Globe-girdling Glidden, Pathfinder Dai H. Lewis and their few assistants who bustled around the Oliver Hotel at South Bend, electrifying the drowsy hallboys. Confetti car for the occasion was the Premier "Six," just six days out from the factory, and its cargo, Dai H. Lewis, all eyes for the odometer and the road book, and Roy MacNamara occupied with steering wheel and throttle. A sack of confetti and numerous traveling bags shared the tonneau with Designer George A. Weideley of Premier interests, and the scribe, who completed the car's complement.

"Is that odometer set back? Come along, boys! Swing it out thick on that corner; now some more on the next turn," spake the commander of the procession. For it is not a single car, but a procession that is required for blazing the way of the Gliddens. Ahead, a speedy Studebaker runabout, piloted by local automobilists, showed the way out of the town, the official Premier followed, behind it was a Maxwell runabout with a reserve of confetti, and in the rear the big Pierce, in which the Cup donators watched the proceedings.

Michigan avenue being in the hands of the repair men, a detour of a couple of miles over narrow country lanes had to be effected, then the main road was struck again and the machines bowled along over a fair surface, deserted except for an occasional farm wagon carrying market produce to South Bend.

Down the road a couple of wagons were observed advancing. Studebaker passed them both with barely a slackening of speed. The Premier "Six" went by the first with a nod to the farmer and his cooped-up chickens of all ages, and was approaching the second equipage when it was noticed that Dobbin was restless. Instantly driver MacNamara cut out his ignition and the machine ran along silently toward the two ladies and the hesitating old horse. The road being banked high, it needed but a slight rearward movement of the animal for the buggy to drop down a couple of feet, dragging the horse after it, overturn, and throw the two ladies out from under their umbrella into the long wet grass.

One minute later the younger of the ladies was up on the road, thanks to the agility of

Dai Lewis, and had ceased her shouts of "Father!" Mother came out with cries and lamentations of "O, my eggs!" When father

had leisurely hitched up his horse and as leisurely walked back to his spouse and offspring, both had recovered from their surprise and were aiding the automobilists to repair. It took but half an hour to turn the frail, undamaged buggy right side up and gather together what remained of the six boxes of eggs—Dai Lewis declares there were half-hatched chickens in lots of them.

"Mister Farmer," said Chairman Hower, "your wife is to blame for this accident, but we are willing to help you out Will \$10 pay for your broken eggs?"

"Twenty-five dollars wouldn't half pay me for them there eggs."

Angry words seemed probable, when George A. Weideley, at whose motionless Premier the horse had shied, slipped another note into the farmer's hand.

"You're a gentleman, sir, you are; you're all gentlemen," and smiles took the place of frowns. Chairman Hower delivered a lecture as to how to act on the approach of an automobile and Charles J. Glidden supplemented it from his bottomless stock of experiences.

Beyond New Carlisle a perfect macadam surface allowed some of the loss to be regained, the confetti car and its escort sweeping along at a brisk rate without the suspicion of a jolt to passengers perched on the rumble seats behind.

A score of times the procession came to a standstill, while nervous horses were led by the machines, and on each occasion the occupants of the chairman's car gave kindly advice, telling particularly when there were ladies that if the hand were raised as a signal every one of the three-score machines in the tour would stop and wait until the horse were led by.

Did every automobilist follow the gentlemanly example of Chairman Hower there would be no disgusted horse drivers and no need for legal speed restrictions.

When the South Bend pilot had cast us off and turned eastward again, and we had set all Michigan staring at our paper trail, Confetti Chief Lewis became pathfinder-in-chief. Road repairs had rendered the original route impracticable, and a new trail had to be laid out. Almost at every turn the procession came to a halt while the leader interviewed the occupants of a roadside house or went in search of inhabitants when none were in sight.



THOMAS PRESS CAR THAT HAD A "FULL HOUSE."

"It's the hardest thing in the world to get information," said Chief Lewis. "Not one man in fifty knows anything about the roads ten miles from his home."

But we blazed out a way. Down narrow lanes which might have been traced by a rolling early-morning reveler; along tracks which lingered, as if magnetically bound to the iron way; through slumbering villages bursting into life at the sound of the autos, and over fair blossom-bordered highways.

Suddenly the Premier's nose went into a soft, oozy bed of mud of unknown depth and settled down, reluctant to leave it.

Chief Lewis momentarily paled, hesitated and appeared to weigh the chances of a retreat and a search for another track against a forcing of the passage.

Chairman Hower glanced nervously down the road, fearful of the thundering arrival of the first speeding competitors.

"We must go through this," exclaimed Lewis.

When she had been coaxed out sufficient to clad the rear wheels with chains, the Premier six-cylinder purred in deep, quiet tones and the big mass sliced a way through the axle-deep

mud an inch at a time, so slow was the progress of an advance. Onward was a fast clip into Hammond, with only an occasional dropping of confetti on the turns. It was useless sprinkling the clean white paper on Chicago's black, oozing mud and water covered inlets of the South Side, and it was only by tearing up every scrap of paper in the car that the trail could be stretched out through lakeside parks to the First Regiment Garage. In all my experience I've never seen worse streets than those which we encountered in those filthy, ill-smelling sections of Chicago, and the transition into the beautiful parks was like a step from Hades to Paradise. It seems absolutely inconceivable to one new to the country that of one of its largest cities, and presumably rated as being in the first class where American centers of population are concerned, should tolerate the existence of such pest holes and morasses of filth that are characteristic of Chicago's South Side. The city was a stench in the nostrils of the tourists, due to the necessity of passing through such parts of it in entering and leaving, and the good clean mud of the country roads was not half as repulsive as it might have been but for the comparison.

WHAT THE MAN BEHIND THE WHEEL THINKS OF IT

By A. B. TUCKER.

JOHN W. HAYNES, who was piloting the Dragon runabout, No. 112, thinks he has as good a chance at the Hower trophy as any of the "perfect" score runabouts. He said on Sunday that the 12 points he had lost were because of fan-belt trouble between Toledo and South Bend. He had to replace the belt eight times, and the heavy going prevented him from making up all the time which he had lost. He thinks there will be several others who will have marks against them before many days. Mr. Haynes said the little Dragon is running well and is in good condition and had no complaint to make regarding the management of the tour. He said he thought the daily schedule might be made a bit more cleverly, but, aside from that, he thought that Chairman Hower was doing as well as could be expected.

J. W. Mears, who is driving No. 43 Acme, says he has found the schedule too fast for sane and safe driving, unless one is willing to rap his car. "On the run from Toledo to South Bend," said Mr. Mears at Chicago, "I found, soon after starting, that I was up against a road the answer to which was 10 miles an hour, and I cut her down to that whenever the roads demanded it. My maximum that day was thirty miles, which is all I considered to be safe under the conditions. I did not touch the engine nor, in fact, have I had to do any work on my car since the tour started, and she is running as smoothly as a sewing machine. But the careful driving I did and the fact that we were delayed on several occasions by other cars which had skidded across the road and blocked it and needed help, or were hanging half over bridges, and so forth, was the cause of my taking a penalization. I took this gladly, for I would rather have

a car to hit the bumps and hills of next week than a clean score at this time. I am morally sure that none of the cars which have persisted in making schedule time up to now are in the tight, trim, just-from-the-factory condition, which is the case with my Acme."

Mr. Mears said that he was confident of finishing the tour, and thought he would be in better shape at the close of it than some of the cars which have a clean score now.

Charles Burman, who is driving the No. 49 Peerless, said at Chicago: "Mr. Straub, who is driving the No. 50 Peerless and myself have had no difficulties of moment since we started. We have each had a little tire trouble, but beyond that have not at any time felt at all insecure about making our night stops on schedule time. Both cars are running nicely and I see no reason why we should not keep up the good work. The second day's run was a severe one, but it is entirely probable that we may have worse before we close our run. With good springs under us, dependable engines and reasonable schedules, I do not care what regulations the committee makes, I think we can meet them."

"This year's tour is undoubtedly a harder one than that of last year, even when the roads are good. With continued rain it may be an exceedingly hard one in the Pennsylvania mountains. But I am the leading member in a flourishing 'don't worry' club of one, and am not borrowing trouble for next week."

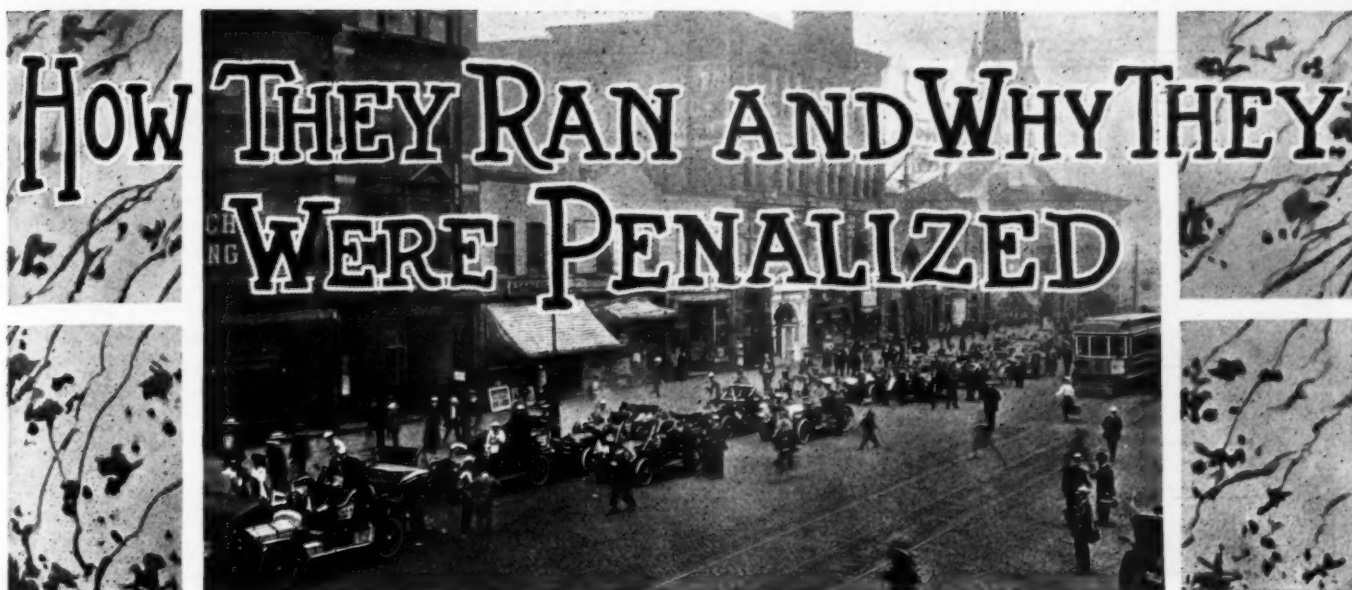
"Chicago entertained us well, and I think there should have been a vote of thanks on the part of the tourists for the pleasant program prepared. I am for another tour next year, but I think it ought to be one thing or the other."



RAILROAD TRACKS WERE PLENTIFUL APPROACHING CHICAGO.



PEACEFUL FARMHOUSES DOTTED THE NORTHERN INDIANA ROADS.



LINED UP FOR THE START OPPOSITE A. A. HEADQUARTERS AT THE HOLLENDEN IN CLEVELAND.

CHICAGO, July 13.—Thirty-one machines out of forty-six competitors for the Glidden trophy traveled from Cleveland to the First Regiment Armory, thus accomplishing the first leg of the great American touring contest, without a single penalization being recorded against them. Fifteen have already stumbled by the way, incurring penalizations from four, in the case of Mrs. Cuneo and her Rainier to maximum points, making all further effort superfluous. Five at least will take no further part in the contest, some of them retiring definitely, others jogging along for the eastward journey as simple non-contesting tourists.

Of the twelve starters for the Hower trophy, eight are without spot or blemish, one has abandoned and three have penalizations.

Three touring machines set out to compete for perfect score certificate without entering the Glidden trophy, and all three have reached the shores of Lake Michigan without the loss of a point. J. G. Barclay's Thomas Forty, originally entered as a Hower contestant, withdrew after a perfect score on the first day in order to be free to attend to Warner Speedometer business for the remainder of the trip. J. L. Zimmerman's Locomobile started and continues as an independent.

Twelve machines are doing various kinds of service work, carrying officials, pressmen, tires, etc., or running independently with non-competing tourists. All have reached Chicago, two only being delayed en route by mechanical troubles.

Club competition, which forms the basis of the Glidden trophy contest, has worked down to a tie between the Automobile clubs of Buffalo and Pittsburg, both with perfect scores, with New York Motor Club suffering a loss of only 13 1-5 points, and others trailing out as follows: Cleveland Automobile Club, 144 7-9 penalization points; Automobile Club of America, 251 1-2; Automobile Club of Detroit, 266 1-2; Westchester Motor Club, 336, and Chicago Automobile Club, 343 points.

Facts About the First Day's Run.

Behind the huge mass of idle spectators, interested automobilists and equipped touring machines crowding the roadway in front of the Hollenden Hotel at Cleveland, July 10, there was an excellent organization which sent the 61 machines engaged in the A. A. tour away on their 1,500-mile journey with perfect regularity.

No sooner had Cleveland's fine asphalt boulevards been left behind than the real struggle began, the machines entering upon Ohio's embryo roads, straight as any highway the Romans laid, but often rocky and uneven as any track of virgin country. Weather conditions, however, were favorable and practically all the machines were able to stand the merciless pummeling for the 121 miles separating Cleveland from Toledo. Seven hours had

been allowed for the journey, thus calling for an average speed of about 17 1-2 miles an hour. As, however, allowances had to be made for moderate travel through towns and villages, almost double this speed had to be attained in open country.

It was a remarkable testimony to the value of the American machines engaged in the contest that, over roads the like of which can be found in no other civilized country in the world, but two machines should fail to arrive according to schedule.

No. 7 Welch in approaching a narrow wooden bridge at the foot of a slight grade collided with the metal part and severely bent the front axle. Fortunately a blacksmith's shop was close at hand and the injured member was instantly put under repair, not without, however, the eventual loss of ten points for late arrival and two points for new bolts.

No. 109, Continental, C. S. Johnston, met with a road accident which caused him the loss of 24 points. When close pressed by a competitor in the rear, he struck a heap of rocks, completely breaking the frame of his car just above the front axle. A couple of metal bars clamped on each side provided a remedy probably sufficiently strong to carry the car to the end of the tour, but too much time had been lost in fixing the stays to meet the requirements of the running schedule.

Among the non-contestants, No. 92, Haynes, "Old Dobbin," carrying pressmen, had to be towed to a garage with a damaged rear axle, but was sent on to Toledo the next morning.

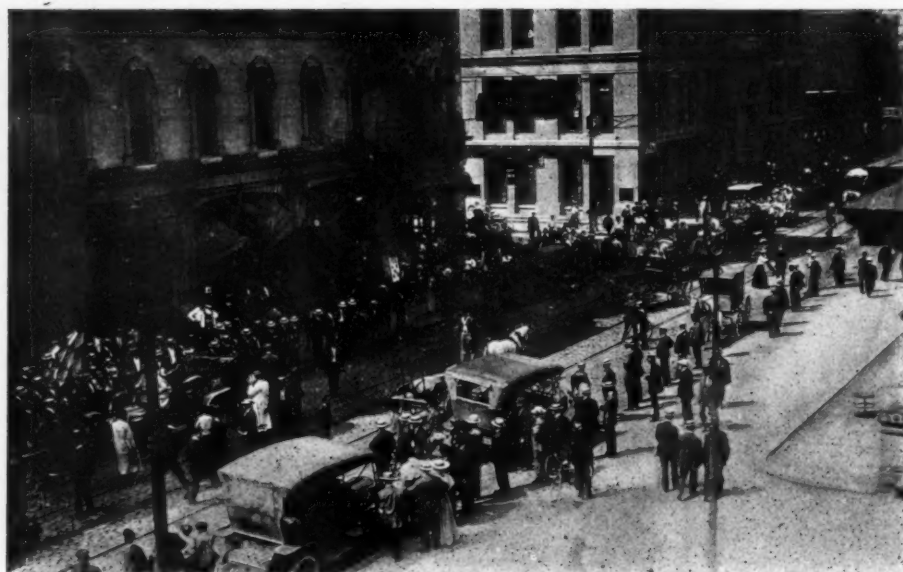
Observing the run from the freelance Aerocar—the only air-cooled engine in the run—no other stoppages for mechanical reasons were observed, and, indeed, the official schedule shows that none other took place.

The Royal Tourist, which Orrel A. Parker had entered and equipped with Newmastic instead of air-filled tires, suffered a delay through one of the new casings bursting. A competing car gave a shoe and inner tube which were mounted after the defective material had been cut off the rim. When a fresh start was made the Royal Tourist had dropped from the head to the tail of the line, but a wild dash got the party into Toledo on time.

At Norwalk, midway on the journey, Colonel Sprague held out the right hand of fellowship to the tourists, providing a wayside luncheon, appreciated by many who would otherwise have driven to the end of the stage without a thought of food.

THE SECOND DAY WAS MOST STRENUOUS.

Rain fell heavily while the Gliddenites slept at Toledo, and when a start was made on Thursday morning road conditions were the worst possible. There are 166 miles from Toledo to



WHEN THE TOURISTS ARRIVED AT TOLEDO FOR THE FIRST NIGHT'S REST.

South Bend which had to be covered in nine hours. The official confetti car took the brunt of the burden, for when Dai Lewis and his party set out on the Maxwell to blaze the way rain was still falling and roads were axle deep in mud.

Almost at the outset—less than ten miles from Toledo—Pierce, No. 2, driven by K. R. Otis, skidded and turned turtle when trying to pass Phil S. Flinn's Pierce, No. 14, on a narrow and treacherously slippery road. Mr. Otis, Mrs. Otis and Miss Rollins were pinned under the car, receiving painful injuries. Photographer F. E. Spooner and Chauffeur J. Newman were both thrown clear as the machine went over and were none the worse for the disaster. Phil S. Flinn held up the cars immediately following, hurrying the sufferers back to Toledo, where they were placed in a hospital. The ladies of his own party, unnerved by the accident, also abandoned the trip, Pierce No. 14 continuing the journey later without them.

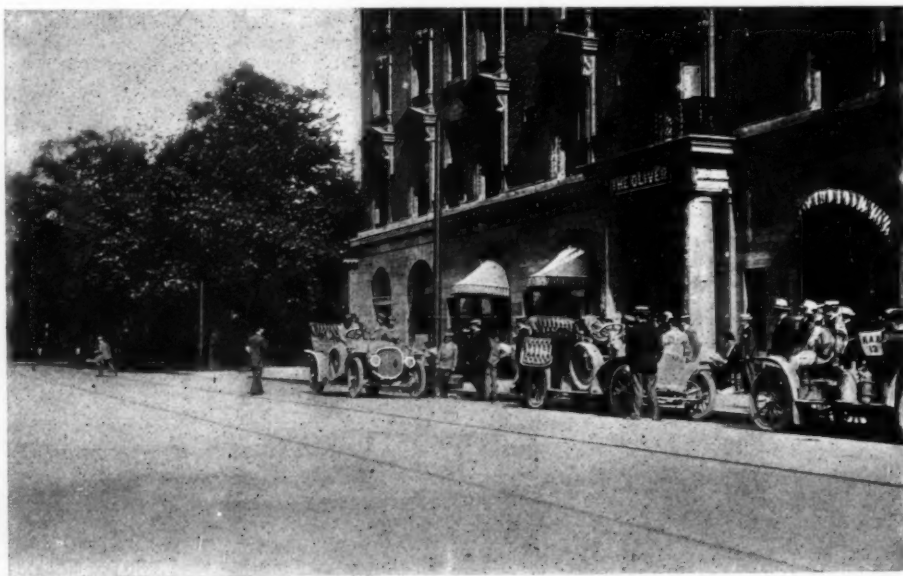
A second accident of an equally serious nature befell T. J. Clark, driving Packard No. 6. Taking a sharp turn at high speed near Bryan, O., the machine rolled over twice, crushing T. J. Clark, who was at the wheel, breaking a rib and inflicting internal injuries. Despite the seriousness of the accident the machine was uninjured in its vital organs, and after the wounded man had been placed under medical care it was decided to continue the run, Dwight Huss taking charge of the car. Half of the steering wheel had been carried away in the fall, making the car exceptionally difficult to manage on the greasy roads. At Brimfield there is a stiff, short rise, followed by a sharp turn to a wooden bridge crossing the railroad. Although going at slow speed, it was impossible to control the Packard, which crashed into the right-hand side of the bridge, breaking down the wooden barrier and stopping with the front wheels suspended over a twenty-foot drop to the railroad below. The double mishap did not dishearten the Packard drivers, for the machine was hauled back onto the road, repaired, and once more started for South Bend. While our Aerocar was held up by the roadside for its fourth inner tube, the Packard rushed by with its two occupants, its broken steering wheel, and its damaged and

very badly scratched body. Every party had to report plenty of mishaps of a minor nature. Running over beds of dripping, oozy clay, on which even a score of cars had failed to find a ground surface, a sudden slewing round of the rear brought mishaps perilously near, and in several cases, as could be seen from tracks, cars had been ditched and hauled out again by other than internal combustion motors. At one wayside cottage, close to a sharp, narrow bend on the road, one good dame reported that three cars had gone into the ditch and that one party had been unceremoniously tossed onto her lawn.

Under the terrible strain of long grinding on the low gear, and of twisting and thumping at the transmission, mechanical weaknesses made themselves manifest. Axle-deep in a sea of mud, the Pungs-Finch was come upon with a cracked cylinder, its cooling water trickling out and losing itself on the besotten highway. A more disconsolate family

party than the two ladies, the young child and four men who cast successive glances at one another, the disabled machine, and the wild waste of mud, it would be impossible to discover. A touch of brightness was added to the scene as a motorcyclist came down the lane, riding with acrobatic agility on a narrow strip of grass or dismounting and pushing his two-wheeler when the border merged into the common basis of mud.

No. 52, Deere, a non-contestant, was passed by the wayside apparently carrying out repairs to front spring hangers. Meteor, No. 37, broke a steering knuckle, which was repaired by the roadside with parts being carried out for the Deere, which had suffered in a similar manner the previous day. Runabout Dragon, No. 113, stripped a gear outside Ligonier and was towed off the scene by a couple of horses. The Acme had serious trouble, incurring a penalty of 106 points. Orrel A. Parker's Royal Tourist was the victim of slight irregularities which made it impossible to adhere accurate to schedule. R. H. Lockwood's little Reo found itself at the end of the day with 22 points to its debit account, and its companion, No. 33, was also docked a point for passing over the line ahead of time. The pilot car had not arrived at headquarters, no flag was displayed, and the Reo driver was in doubt as to the



SOUTH BEND HEADQUARTERS, WHERE SECOND AND FOURTH DAY STOPS WERE MADE.

exact time. Under such conditions his penalization is more of an honor than a disgrace. N. H. Van Sicklen, a veteran of previous Glidden tours, had ill luck which caused him the loss of 23 points. The magneto contact broke away and, although the official score would only appear to indicate a minor trouble, the breakdown was so complete that Van Sicklen ceased to strive for the trophy.

In addition to the Dragon two other Hower trophy contestants suffered from the strenuous conditions, R. G. Kelsey and his Matheson with a loss of 56 points, and C. S. Johnston's Continental with a loss of 35.

THIRD DAY WAS COMPARATIVELY EASY.

With a quarter of the road perfect and the remainder never descending below the moderate stage, excepting a miry mile near Croker and Chicago's unsavory entrance—most of the contestants traveled the hundred odd miles from South Bend to Chicago without penalizations.

N. H. Van Sicklen's Apperson made the journey, but ceased to compete for the trophy, the entrant announcing later that, as the result of magneto troubles, he would not go further than Chicago. No. 6 Packard also ceased to figure as a contestant, and Orrel A. Parker withdrew his Royal Tourist, after protesting that the tour had become a race. Columbia 56, entered by F. E. Dayton, failed to come through, and Charles A. Fleming's Maxwell had to be hauled to a blacksmith's shop with a broken rear axle. When the damage has been repaired the machine will continue as a non-contestant. About forty miles east of Hammond, Ind., A. L. Peterson's Meteor swerved out of the road in order to avoid hitting a buggy, jumped a ditch six feet wide and broke through a barbed-wire fence. A spring clip had to be replaced as the result of the leap, and the time lost in getting the car back to the road involved a penalty of 160 points.

American Mors No. 15, driven by G. Cabanne, skidded while traveling at a rapid clip. A front tire blowing out at the same moment, the machine rushed into a telegraph post, throwing all the occupants into a swamp. None were hurt, nor did the delay affect the clean score of the car.

All the runabouts competing for the Hower trophy finished the daily dash with perfect scores. J. C. Zimmerman's free-lance Locomobile arriving in Chicago just behind the official confetti car. W. A. Badger withdrew his Cleveland No. 115 with a clean score, stating that important business called for his presence at New York.

FOURTH DAY RUN HAD A PACEMAKER.

SOUTH BEND, IND., July 15.—Those who protested that the A. A. A. tour was developing into a cross-country scramble had their justification to-day, when the committee in charge put into operation a scheme by which it was impossible for any competitor to lay up for himself by fast driving a reserve of minutes for possible emergencies. Chairman Hower, on official Pierce "99," set out half an hour ahead of the first car, maintaining an average speed which would bring him into control within the time limit and forbidding any competitor to pass the pacemaker. As the cars were sent away at one-minute intervals, each driver was given a card bearing a large printed number, corresponding to the position he occupied in the procession. Except when a stop was made for repairs, no car might pass another bearing a lower number. Competitors detained en route for any reason had the right of way, on holding up their card, over others with higher numbers, but only to gain their original position in the procession.

The plan worked satisfactorily, for no complaints were heard during the journey, and when criticism was invited at the close of the day none was forthcoming.

Although the Chicago-South Bend route had deteriorated considerably as the result of early-morning rains, 60 per cent. of it being poor to bad, there were few difficulties along the roadside.

H. C. Shoemaker removed his production from the active to the non-contesting list. R. L. Lockwood's No. 34 Reo found 212 points against it at the end of the day, and No. 35 Reo, up to this point a perfect scorer, turned its back on the tour at Chicago. George F. Barr's No. 46 Aerocar, mostly through repeated tire troubles, lost time to the value of 106 points, all other contestants for the Glidden trophy or clean-score certificates arriving according to schedule.

Among the Howerites, No. 106, R. G. Kelsey's Matheson, was the solitary derelict, all others arriving with the regularity of clockwork. About ten miles from South Bend the Matheson broke a connecting rod, was towed home by a White steamer, penalized the maximum number of points and abandoned the run.

Buffalo and Pittsburg automobile clubs still remain with perfect scores. New York, Cleveland, A. C. A. and Detroit had additions to their black list, while Chicago and Westchester clubs finished the day without any loss.

FIFTH DAY'S RUN ENDS IN A WARM WELCOME.

INDIANAPOLIS, IND., July 16.—In the 147-mile run to-day from South Bend, three of the clear-score brigade lost their places in the honor roll of perfect performers. It was a hard day's run over roads that were both good and bad, about as much of one kind as the other. Mayor Bookwalter and "Tom" Taggart, who was the city's chief executive when the L. A. W. meet was held here eleven years ago, were in the party which escorted the early arrivals into the city. At a brief session to-night in the Hotel Denison, where the Automobile Club of Indiana has rooms and entertained the tourists, the Mayor in a short speech tendered the freedom of the city to the visitors. Deep sorrow was expressed when Mr. Glidden stated that word had come from Bryan, O., of the death of T. J. Clark, who was injured on the second day's run. A committee was appointed, with Mr. Glidden as chairman, to draw up resolutions of sympathy to be forwarded to the family of the deceased. To-night the contesting cars are parked in Soldiers' and Sailors' Monument circle and guarded by policemen. One car failed to start this morning—H. N. Coate's Auto-car No. 30, which began the run with a cracked frame, had further trouble and had not checked in when the score sheet was made up. George F. Barr's Aerocar No. 46, which was late to report on Monday, went out of the tour as a contestant, but after being repaired will continue as a free lance. A broken water pipe connection caused the loss of points. J. H. Becker's sealed bonnet Elmore to-day broke a hub, causing a delay of several hours, soiling the previous clean-score record, but not putting the car out of the run. A defective rear axle bearing was the cause of the abandonment of H. C. Stutz's Marion runabout No. 107, about forty miles from Indianapolis, and it was towed to this city.

About twenty miles from Indianapolis I. W. Kirkham's Maxwell was struck by James Barclay's Thomas non-contestant and one of the Maxwell's front springs was damaged. Chairman Hower gave permission to have the spring repaired under suspension to-night without loss of points and the car remains in the clean-score list. It made the control on time to-day by accomplishing a quick temporary repair.

When the caravan passed through Kokomo the tourists made brief stops at the Apperson and the Haynes factories, where the glad hand was extended in good style, cooling drinks being served ad lib. All along the route in this district there was an air of welcome, with flags waving and many spectators. At Kokomo the rival makers tried to outdo one another in being the first to relieve the tourists' throats of some of the parching dust, the Apperson brothers providing a liberal supply of lubricators, with white-jacketed waiters to hand them out, while the Haynes people sent their refreshments out in a number of testing cars, each arrival being held up, to his own surprise and relief. Wednesday the Stoddard-Dayton Company provided both liquid and solid refreshments to the hungry travelers when they arrived at Dayton, where similar pains had been taken to provide royal hospitality and an open welcome to the tired and dusty cavalcade.



SPECIMEN OF THE ROADS ENCOUNTERED BY "THE AUTOMOBILES" AEROCAR BETWEEN TOLEDO AND SOUTH BEND.

Chicago's Entertaining.—Chicago gave gracious welcome to the tourists and contestants. There was a steady procession of private cars running out to the suburbs, with their occupants waving greetings. At the head of Michigan Avenue a long file of Maxwell cars were drawn up, with military precision, each bearing a sign and its horn tooting continuously. The stores of the agents along Michigan Avenue were decorated, and the dealers shouted welcomes from the curb line. The Chicago Automobile Club, the Chicago Motor Club and the Chicago Automobile Trade Association had a printed programme for Friday, Saturday and Sunday ready, which was distributed to the occupants of each car as it arrived. The events of Friday were a concert by the Ellery band at the Coliseum and a reception at the new clubhouse of the Chicago Automobile Club. On Saturday there was the 24-hour race at Harlem, which began at 4:30 P. M. Friday, preceded by short contests. The tourists were not admitted free, as not a few had anticipated, when they reached the track. Sunday there was a run along the north shore of the lake to Ravinia Park, where a concert was given by the Damrosch orchestra. At 5 P. M. a military review followed at Fort Sheridan. As for informal entertainment, it was in progress all the time. Everybody was willing and anxious to buy liquid and solid refreshments, and the cafe at the Annex was kept in a busy state.

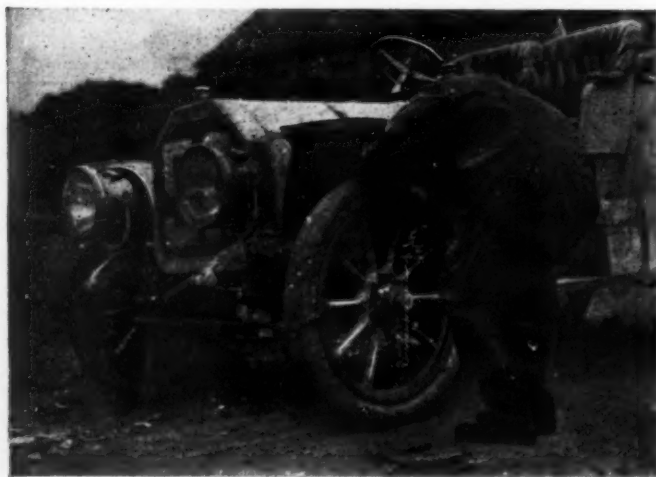
Hotel Arrangements.—The "Man from Cook's" was at times a bit hard to follow, and, of course, there was some kicking

about the hotel arrangements; but the fact is that the committee pretty well lived up to its agreement for impartial treatment of all. The instructions of the advance agent, who was a stranger to the tourists, were to even up the "room-and-bath" accommodations, so that on the whole trip every one would have this arrangement an equal number of times, the "room-and-bath" supply seldom being equal to the demand. A party that had poor accommodations at one place had good fare at the next, and vice versa.

One of the humorous phases of the hotel accommodation matter turned to light when the big hotels were reached. Those who went through Canada last summer and remembered Three Rivers as a sort of "some place east of Suez, where their best is like our worst," put in a sweeping request for the "best there is" throughout the trip. At Chicago one of these participants found his chauffeur and mechanic, as well as himself, assigned to rooms at \$8 a day, while Chairman Hower was passed out for his lonely occupation a corner suite of bedroom, parlor, dining-room and bath, with oil paintings on the walls, and a tariff of \$25 a day, European plan.

Suggestions for the Next Tour.—Said one who gives much thought to endurance touring: "Nearly every one has it all framed up how these events should be run in future. One thing seems certain, that we have more valuable experience in regard to what conditions are proper than ever before, and another year should see an excellent set of rules. The folly of penalizing the cars for arriving ahead of time, and the farcical harshness of making them and their occupants sit in the sun or rain, all dirt begrimed, for an hour or so before checking in never was brought into relief more ridiculously. This rule, originally designed to prevent racing, does nothing of the sort, and, therefore, is the persistence of a silly blunder. A premium is put upon 'beating it' by requiring that lost time be made up, and the only way to abolish it seems to be in the suggestion to borrow an idea from the rules framed by the Automobile Club of America for its Sealed Bonnet contest—have all the stops for tire troubles, repairs, refreshments, etc., added to the running time, so that a stop of an hour makes a car due one hour later. This, of course, would necessitate placing an observer on every car, but it would eliminate the racing, and a schedule could then be framed that would be sufficiently severe to make a contest."

Now Inclined to Believe in Fate.—Frank J. Fanning, sales manager of the Haynes Automobile Company, and Mrs. Fanning, believe somewhat in fate now. While traveling in the Haynes No. 92, entered by F. Ed Spooner, from Toledo to Bryan they had a narrow escape through a skid, which threw



CHAINS WERE NEEDED EVEN ON THE FRONT WHEELS.

the car off one side of the road. The wheels on one side dropped down into a pipe-line excavation, which was hidden in the tall grass. Mrs. Fanning flew out of her seat on soft turf and was uninjured. Mr. and Mrs. Fanning had come to Toledo in a Royal car from Elyria, driven by Robert Jardine, the Royal designer. The Haynes arrived late the morning of the start from Toledo, the delay having been due to a small repair. Mr. Fanning was anxious to go on, and there was one place with Mr. Otis; but both Mr. and Mrs. Fanning could not be taken care of. Mr. Fanning then said he would be all right in Packard No. 6. While waiting for this car the Haynes came along, with Edward Aker driving, and Mr. Fanning took it. The Packard car turned over with Mr. Clark driving, as did also the Pierce car, and Mrs. Fanning was thrown out of the Haynes car in the bargain.

Sally Sandsak.—A surprising amount of sport was had by Arthur Jervis and the other occupants of the only Berliet car, entered for the American Locomotive Automobile Company, out of the dummy figure of a woman that they carried in the tonneau. Originally the thing was a sack to be filled with sand as ballast, in lieu of a fourth passenger, and H. C. Townsend, the driver, had rigged it out as a lay figure for his own amusement. The live passenger was found at the last minute, and the bag stuffed with straw and tied so as to form a head, on which features were painted, and the whole surmounted with a woman's hat and veil, while the body wore a duster. The dummy was christened Sally Berliet Sandsak, and "Sally" made a hit with the bystanders in every town. In fact, her presence in the car won the other occupants much sympathy from the fair sex, who seemed to think that they had been so lonely for female society that they had rigged up "Sally" for company.

The Solitary Air-Cooler of the Run.—Air-cooled advocates failed to put in an appearance for the Glidden, the Hower, or the clean-score competition, a fact which called forth not a little comment from automobilists in general. The only air-cooler on the run was the freelance Aerocar No. 91, carrying THE AUTOMOBILE representatives. Without a falter from beginning to end, without even lifting the hood except to pour oil into the crankcase, the little waterless car has performed a task which some of the powerful water-cooled machines found beyond their strength. Except for a series of punctures on the second day, all the controls would have been made on time, though ever and anon the driver was held back while an interesting scene was snapped or information gathered on roadside phases of the run.

Humorous in His Misfortunes.—Car No. 36, a Pungs Finch, driven by E. B. Finch, was not heard from officially after the start from Toledo on Thursday morning. Saturday afternoon R. D. Chapin received two amusing postals from Mr. Finch, both sent from Swanton, Ohio. The first one had on it a picture of the victim of a lynching bee hanging from a tree limb, and the printed legend read: "I've got to hang around here awhile." Written by Mr. Finch across the face of the card was the message: "Awfully sorry I can't continue with you." The second postal was more explicit. The printed part was a picture of a man suspended by his trousers seat from a hook in front of a butcher store, and the words: "I stopped on my way down." On this Mr. Finch had written: "Cracked cylinder."

Daily Newspapers Well Represented.—The leading dailies which give particular attention to automobilism are all specially represented. New York papers have these well-known writers: Johnson, *Sun*; Curry, *American*; Jervis, *Mail*, until Wetmore joins at Pittsburg, when "Senator" Morgan will again continue the *Globe* story; Gerrie, *Herald*; Horner, *Press*; Harrison; *Tribune*; Field, *Brooklyn Eagle*. Boston has Kerrison, *American*; Sullivan, *Globe*; Reynolds, *Post*; Murphy, *Herald*. Chicago's



SOME PURE COUNTRY MILK WHILE THE TIRE IS REPAIRED.

men are Patterson, *Record-Herald*; Estey, *Inter-Ocean*; Clark, *Post*. Philadelphia has Gilchrist, *North American*; White, *Press*. Cleveland's pair are Lowrie, *Plain-Dealer*; Gilbert, *Leader*. Buffalo supplies Sullivan, *News*; Stevens, *Express*. Of course, the camera stars are along—Spooner, Lazarnick, Shapiro, Corneille and several others.

Youngest Driver of the Tour.—The youngest driver on the trip is little Albert Kumpf, who operates Pierce No. 27, the number always used by Percy Pierce. Young Mr. Kumpf is under 18 years of age. He has been a driver for a great many years, and is a careful and conscientious operator of a machine. "The Kid," as he is known by his fellows, was with Percy Pierce in the Herkomer contest, and has been out a lot in cars. It is said that he was originally office boy for the Geo. N. Pierce Company, and graduated to a position as stenographer, taking up driving through a liking for it. He holds his car well in hand at all times, does not drive at all recklessly, and arrives in ample time to score in every night. He has no ambition to be in hours ahead.

Should the Racing Board Run the Tour.—At Chicago one of the jesting contingent suggested that the balance of the tour be turned over to the Racing Board of the A. A. A. to conduct, there being two members of the Board in the caravan. In speaking thus the joker was unconsciously flitting about the flame of vital truth, which is that, inasmuch as the automobile is primarily a speed vehicle, it is anomalous to project any lengthy competition between motor cars in which the element of speed is not a factor. Excepting gymkhana events, an automobile contest in which racing does not enter is so absurd as to be almost unthinkable. For this reason the Racing Board is the proper body to control all competitions.



COL. SPRAGUE GREETING "THE EDITOR" UNDER HIS BANNER

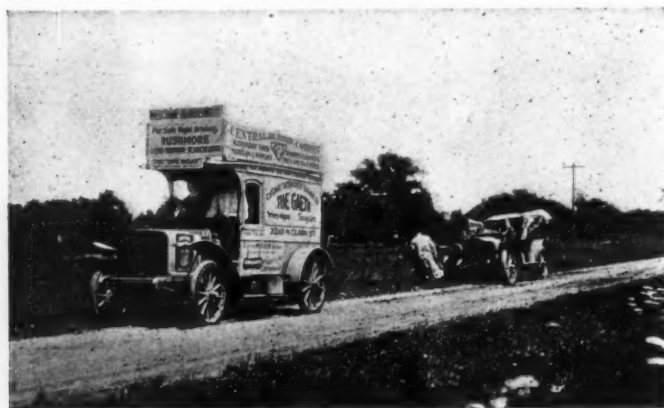


THE WHITE STEAMER THAT CARRIED DIAMOND TIRES.

A Royal Try-Out.—Twenty-five miles out of Toledo a slight trouble developed in F. E. Spooner's Haynes No. 92, which necessitated a slight delay, the car being a non-contestant. Robert Jardine, of the Royal Motor Car Co., came up in a Royal. Asked where he was going, he replied "Anywhere," and the party hopped in with a request that Mr. Jardine take them to Toledo. He did so at an average of thirty miles an hour, remained a few minutes, and made the run back to Cleveland in four hours, a trip of 244 miles, as a favor to friends. Mr. Jardine was merely trying out a car brought in by an amateur, who claimed it had no speed. Mr. Jardine found that it did.

How One Farmer Made Money.—Along the road nearing South Bend a farmer's boys aided him by filling a deep rut with great clods of hard dirt. Striking these the cars skidded easily into the ditch, when the farmer made a dollar pulling them out. The writer saw the clods while traveling along in a Thomas "60," sent out by the B. F. Goodrich Rubber Co., and just as the car reached the point the kids came out of hiding in the woods to see the fun. There was no fun, for William Turner, the driver, held the car well in and passed over the trouble easily. For doing so the kids reviled him, and the farmer had rather a sour expression when greeted cheerily.

Ohio Due to Make Roads, Not Presidents.—Here is a press agent's paragraph, given out at Toledo. "A character of the tour, who made a hit from the start, is Sally Sandsak, who sits very erect in the tonneau of the only Berliet entered and is affable to every one. According to Adell Starr, who rode with her the first day, Sally said of the roads: 'This beats the bumps at Coney Island. See this rich country, and these dirt-cheap roads! It does jar me! And I think the people of Ohio had better stop making Presidents and begin to make roads.'" Sally is wise in her generation.



"THE LIFE BOAT" THAT RENDERED ASSISTANCE EN ROUTE.

It's Strenuous, All Right.—It was amusing to the veterans of former Glidden goings to hear the newcomers thresh over the old straw of the unmiscibility of the sweets of touring and the bitters of contesting. In announcing his withdrawal, one contestant filled up three type-written sheets with arguments to prove that the schedule required too strenuous a pace for pleasure. He had it all figured out to show that, deducting the mileage through towns at the legal pace, the cars must "beat it" all the time in the open country.

Why He Didn't Drive in Chicago.—The only Tom Fetch turned his Packard press car over to another driver some distance out of Chicago and entered the city on a railroad train. As they say at breakfast time, "There's a reason." Tom, who never could be accused of carelessness, had the misfortune to run down a man in the Windy City not long ago, and the police were looking for him. Tom was not conspicuous at any time during the stay in Chicago.

Two Keen Observers.—Benjamin Briscoe and John D. Maxwell have been more or less in evidence at several of the stops, and they have been keen observers of proceedings. They both like touring, but can't see the fun of a hundred miles or so a day over miscellaneous roads, averring that they do ride in their own cars frequently, like the Cleveland restaurant keeper, who advertises in this strain: "I eat in my own place."

Few of the Fair Sex.—Most of the men competing made up their minds before the start that the affair was not a joy ride, but a contest, and as such would be no place for women. Consequently, there were very few of the fair sex in the party, and those present probably came to the same conclusion previously reached by the men who left their wives at home.

The Busy Publicity Men.—It is an active and resourceful band of publicity men who accompany the tour. They include R. H. Johnson, White; George Davis, Thomas; A. N. Jervis, Berliet and Maxwell; A. B. Tucker, Peerless; G. W. Campbell, Aerocar; Robert Spangler, Welch, and others who do some publicity work incidentally.

Roasting the Chairman.—"Shall we roast Hower?" was the query put to themselves by a coterie of newspaper men at dinner one night. One replied: "Oh, don't shoot the Chairman; he's doing the best he can." This went with most of the scribes, but some captious pens love any sort of a mark.

A Pessimistic Reflection.—One of the pessimistic reflections offered at Chicago was: "We have finished three running days out of fifteen, or one-fifth of the task. If the remainder of the tour develops five times the eliminations, penalizations and casualties of the first three days, what will be left of it?"

The Only Woman Driver.—One who is enduring the inconveniences and hardships of the trip not only with fortitude, but with patient amiability, is Mrs. Andrew Cuneo, the only woman driver. She tools her Rainier through the mud and dust and comes in smiling, with a pleasant word for all.

A Heavyweight Quintette.—W. M. Lewis, entrant of the Mitchell No. 24, is carrying a load of five, all of them heavyweights, and yet this is one of the few cars that had absolutely no difficulties in the first three days. Sales Manager J. W. Gilson is one of the happy tonneau passengers.

Likes the Going.—Sales Manager A. D. McLachlan, who rides in Royal Tourist 42, along with Messrs. Jardine and Cromwell, is one who makes light of the rough going. He says that he is riding "as comfortably as in a Morris chair on a veranda at the seashore."

Star Sleuth of A. L. A. M.—James Carples, the star sleuth of the A. L. A. M., was floating about the Auditorium Annex Saturday and Sunday, disguised as a smooth-faced man. There was no use asking his mission there.



WHEN NAZZARO MADE HIS TRIUMPHAL DASH PAST THE GRANDSTAND.

PARIS, July 3.

—France has taken her defeat in the Grand Prix in a stoic manner, admitting with a frank-

ness that is rather surprising that a firm which can triumph over the world's best in three such widely differing contests as the Targa Florio, the German Emperor's Cup and the Grand Prix must indeed be the best. The Targa Florio was run on maximum bore, the German Emperor's race on maximum cylinder capacity, and the Grand Prix had minimum fuel consumption as its basis, each event calling for a different type of motor, and in each case Fiat produced the winner.

A minor satisfaction is drawn from the race by the French from the fact that all positions from second to ninth, inclusive, are held by native machines, Germany only placing one car, and that in tenth position. Altogether, but four foreign machines out of the sixteen officially finishing the race were built out of France, and this is considered as some consolation.

The mistake appears to have been made by French drivers of being too economical of their fuel. Lancia was unable to finish for lack of gasoline; Nazzaro had but 2.4 gallons when he reached the winning point. Most of the French tanks on the other hand contained a plentiful supply of fuel, Rigal (Darracq) having 9.3 gallons, for which he gains the gold medal, Barillier (Brasier) 9.2 gallons, Baras (Brasier) 8.5 gallons, Caillois (Darracq) 7.9 gallons, Sziisz (Renault) 6.8 gallons.

A week before the race weather conditions had been unfavorable, rain and strong winds considerably augmenting the fuel consumption. But a few hours before the race the weather changed completely, allowing the cars to cover a much greater

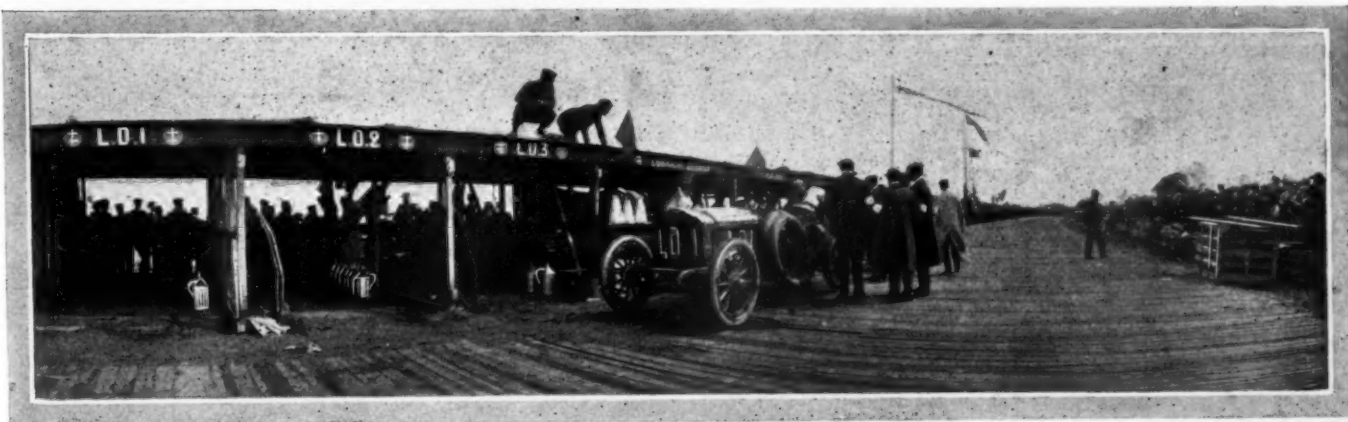
mileage on a gallon of fuel than had been possible during the previous days. Had the bad weather continued, possibly Nazzaro would not have completed the distance on his fuel allowance. General satisfaction is expressed on the working of the new fuel consumption regulations. The amount of gasoline allowed is the average amount used by the winning machine in the first Grand Prix and the Gordon Bennett race, with 1,000 kilos weight



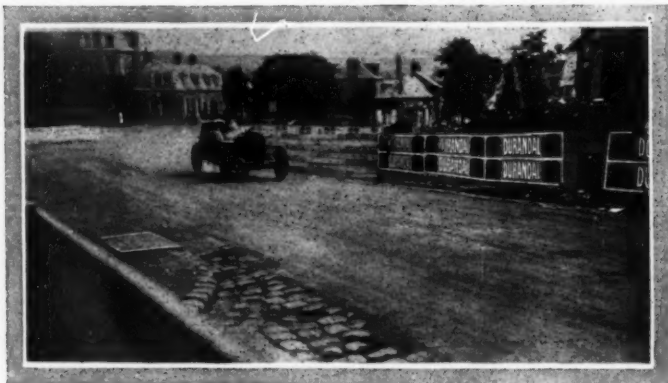
SZISZ IN FULL CRY THROUGH BELLEMEVILLE.

limit. Generally the machines are heavier than previously, but they are at least 10 per cent. faster than those of preceding years and are more economical in their consumption of gasoline. This year's course is no faster than the Sarthe circuit of last year, and is certainly several degrees slower than the Ardennes circuit, yet the machines have attained and maintained a speed unknown in any previous contest.

Brasier was the only manufacturer to complete the race with a



WHERE THE RACING GIANTS REPLENISHED THEIR SUPPLIES IN THE SEMI-CIRCLE OF SPECIAL DEPOTS BACK OF THE GRANDSTAND.



FITZ SHEPARD ON THE CLEMENT PASSING THROUGH ERE.

full team, his car being placed third, seventh and twelfth. Renault, though winning second place, but seven minutes behind Nazzaro, had a series of misfortunes. The day before the race Edmond became ill and had to be replaced by Henri Farman, who had never been round the course on a racer and who had not previously driven the machine. Richez, on the difficult Londinieres corner, overturned his machine, starting again with the loss of a complete round. The Bayard-Clement team of three was robbed of one unit by the breaking of a dismountable rim on Alezy's machine, his companions, Garcel and Fitz Shepherd, finishing in eighth and ninth positions. Shepherd bought the racer but a few weeks before the contest and although having had little training made the best score in his racing career.

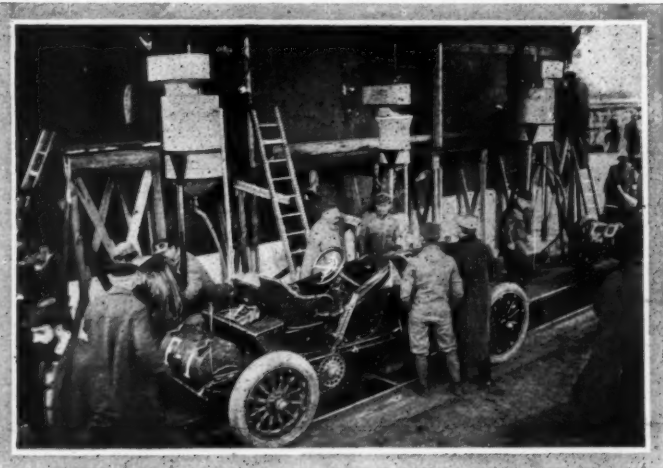
To the surprise of all, not one of the new Panhard machines specially built for the race and tested out for months previous finished within the time limits imposed. Mercedes was only slightly more fortunate, Hemery, who is now an international free lance, placing the only car for the German firm.

SMALL INTEREST SHOWN IN SPORTING CUP.

PARIS, July 3.—In the excitement of the Grand Prix very little attention was paid to the seven machines rushing round the course at the same time in an independent struggle for the Sporting Commission Cup, the regulations for which were identical with those of the greater event, except that the gasoline allowance was reduced by half. De Langhe, previously unknown in the racing world, from the outset secured the lead with his Darracq and retained it, with the exception of the fourth round, when Demogeot, also on a Darracq, led for a few minutes. Final position for the six rounds (287 miles) was as follows:

SIXTH ROUND.

	H.	M.	S.
Darracq, De Langhe.....	56	13	25 2-6
La Bulre, Mottard.....	26	19	2-6
Darracq, Demogeot.....	27	56	2-6
La Bulre, Sibour.....	29	2	2-6
La Bulre, Dumaine.....	45	40	
Porthos, Collin Deffries.....	6	25	10



REPLENISHING A CAR'S GASOLINE SUPPLY OVER THE PIT.

PROGRESSIVE ELAPSED TIME FOR ALL CONTESTANTS IN GRAND PRIX, SHOWING PLACES AT END OF EACH ROUND.

	First Round.	Second Round.	Third Round.	Fourth Round.	Fifth Round.	Sixth Round.	Seventh Round.	Eighth Round.	Ninth Round.	Tenth Round.
1	Flat, Wagner.....	39:53	1:18:47	Duray.....	2:39:10	Duray.....	4:03:55	Duray.....	5:23:35	Nazzaro.....
2	Dietrich, Duray.....	40:00	1:19:54	Lancia.....	2:41:36	Lancia.....	4:06:42	Nazzaro.....	5:29:34	Szisz.....
3	Renault, Szisz.....	40:39	1:21:41	Nazzaro.....	2:43:02	Nazzaro.....	4:07:20	Nazzaro.....	5:37:18	Lancia.....
4	Mercedes, Szisz.....	40:17	1:21:48	Gabriel.....	2:43:02	Gabriel.....	4:11:56	Lancia.....	5:37:52	Baras.....
5	Dietrich, Gabriel.....	41:33	1:22:13	Szisz.....	2:48:05	Szisz.....	4:13:20	Calliois.....	5:44:08	Rigal.....
6	Flat, Lancia.....	41:33	1:22:13	Calliois.....	2:48:37	Calliois.....	4:16:14	Gabriel.....	5:45:23	Rigal.....
7	Dietrich, Roulier.....	41:37	1:22:20	Hanriot.....	2:50:42	Hanriot.....	4:21:11	Baras.....	5:46:01	Calliois.....
8	Darracq, Hanriot.....	41:59	1:23:34	Nazzaro.....	2:50:42	Nazzaro.....	4:22:12	Rigal.....	5:48:24	Barillier.....
9	Darracq, Le Blon.....	42:01	1:23:39	Calliois.....	2:50:42	Calliois.....	4:23:08	Baras.....	5:48:24	Barillier.....
10	Darracq, Calliois.....	42:06	1:24:44	Roulier.....	2:56:26	Roulier.....	4:31:08	Barillier.....	5:57:14	Shepard.....
11	Flat, Nazzaro.....	42:45	1:26:23	Baras.....	2:56:26	Baras.....	4:31:08	Shepard.....	5:57:14	Shepard.....
12	Brasier, Barillier.....	43:19	1:27:25	Alézy.....	3:04:45	Alézy.....	4:37:47	Shepard.....	6:05:38	Hémery.....
13	Clement, Alézy.....	43:43	1:27:25	Shepard.....	3:04:45	Shepard.....	4:37:47	Shepard.....	6:05:38	Hémery.....
14	Brasier, Baras.....	45:25	1:32:39	Roulier.....	3:09:05	Roulier.....	4:56:45	Salzer.....	6:12:11	Courcade.....
15	Mercedes, Hémery.....	45:46	1:32:39	Shepard.....	3:09:05	Shepard.....	4:56:45	Salzer.....	6:12:11	Courcade.....
16	Clement, Hémery.....	46:27	1:35:15	Alézy.....	3:17:56	Alézy.....	5:02:15	Salzer.....	6:12:11	Courcade.....
17	Clement, Shepard.....	46:37	1:36:09	Rigoly.....	3:23:12	Rigoly.....	5:02:15	Salzer.....	6:12:11	Courcade.....
18	Weiigel, Harrison.....	47:01	1:40:26	Stricker.....	3:23:12	Stricker.....	5:02:15	Salzer.....	6:12:11	Courcade.....
19	Mercedes, Courcade.....	50:00	1:41:26	Dutemple.....	3:33:41	Dutemple.....	5:04:28	Hémery.....	6:12:11	Courcade.....
20	Mokobloc, Courcade.....	51:13	1:44:14	Rigoly.....	3:33:41	Rigoly.....	5:04:28	Hémery.....	6:12:11	Courcade.....
21	Renault, Farman.....	51:19	1:44:18	Dutemple.....	3:33:41	Dutemple.....	5:04:28	Hémery.....	6:12:11	Courcade.....
22	Panhard, Farman.....	52:23	1:46:55	Stricker.....	3:33:41	Stricker.....	5:04:28	Hémery.....	6:12:11	Courcade.....
23	Panhard, Stricker.....	52:33	1:46:55	Dutemple.....	3:33:41	Dutemple.....	5:04:28	Hémery.....	6:12:11	Courcade.....
24	Gobron, Rigoly.....	53:25	1:49:49	Dutemple.....	3:33:41	Dutemple.....	5:04:28	Hémery.....	6:12:11	Courcade.....
25	Panhard, Rigoly.....	54:48	2:01:03	Dutemple.....	3:33:41	Dutemple.....	5:04:28	Hémery.....	6:12:11	Courcade.....
26	Corre, Collomb.....	54:48	2:01:03	Dutemple.....	3:33:41	Dutemple.....	5:04:28	Hémery.....	6:12:11	Courcade.....
27	Mokobloc, Degrais.....	54:48	2:01:03	Dutemple.....	3:33:41	Dutemple.....	5:04:28	Hémery.....	6:12:11	Courcade.....
28	Germain, Degrais.....	54:48	2:01:03	Dutemple.....	3:33:41	Dutemple.....	5:04:28	Hémery.....	6:12:11	Courcade.....
29	Germain, Degrais.....	54:48	2:01:03	Dutemple.....	3:33:41	Dutemple.....	5:04:28	Hémery.....	6:12:11	Courcade.....
30	Dufaux, Dufaux.....	54:48	2:01:03	Dutemple.....	3:33:41	Dutemple.....	5:04:28	Hémery.....	6:12:11	Courcade.....
31	Germain, Degrais.....	54:48	2:01:03	Dutemple.....	3:33:41	Dutemple.....	5:04:28	Hémery.....	6:12:11	Courcade.....
32	Germain, Degrais.....	54:48	2:01:03	Dutemple.....	3:33:41	Dutemple.....	5:04:28	Hémery.....	6:12:11	Courcade.....
33	Christie, Christie.....	54:48	2:01:03	Dutemple.....	3:33:41	Dutemple.....	5:04:28	Hémery.....	6:12:11	Courcade.....
34	Mokobloc, Page.....	54:48	2:01:03	Dutemple.....	3:33:41	Dutemple.....	5:04:28	Hémery.....	6:12:11	Courcade.....
35	Brasier, Bablot.....	54:48	2:01:03	Dutemple.....	3:33:41	Dutemple.....	5:04:28	Hémery.....	6:12:11	Courcade.....
36	Weiigel, Laxen.....	54:48	2:01:03	Dutemple.....	3:33:41	Dutemple.....	5:04:28	Hémery.....	6:12:11	Courcade.....

The Scottish Reliability Trials

By Joseph A. Mark. Jr.

GLASGOW, July 6.—As a searching test of reliability, last week's trial of the Scottish Automobile Club stands out as the most severe on record and will go down in history as unique in automobile annals. In five days the hundred cars have traversed well nigh 800 miles of the most mountainous country of Scotland, and with weather conditions persistently adverse, yet out of this ordeal all have emerged with triumph, and of the ninety-eight starters from Glasgow on Tuesday morning every single car finished on Saturday evening—the withdrawals continuing their journey unofficially and turning in at the close of the proceedings. As a triumph of organization, too, the trial has gained fame. With genial and untiring Secretary Smith at the head of operations, the Scottish A. C. has covered every detail relating to the conduct of the trial and the well-being of participants, every contingency being foreseen with a skill born of long previous experience.

The best tribute of this trial's success is the unanimous support of the trade. Entries totaled 107, and this number, as high as is consistent with efficient management, speaks well for the popularity of an event which has not the international glamor of a Herkomer tour. This number of cars of all powers and sizes was marshaled into seven divisions based on chassis price. Ten were numbered in Class I, listed at less than \$1,000, and here the 9-10 Cadillac and 15 Ford upheld America's reputation. This Ford did creditably under circumstances unusually severe. By the rule stipulating four passengers for every car of greater horsepower than 12, this two-seated runabout had to be fixed up with a special body, and throughout the run conveyed its overload of two extra twelve-stone passengers and their luggage.

In the under \$1,500 section were the Buick, which Huszar came across the Atlantic especially to drive, the 18 Reo and the 16 Maxwell, but this latter failed to materialize, along with the 55-horsepower Benz and seven others. The remaining classes contained the 20-horsepower White in the under \$2,500, the six-cylinder Ford in the under \$3,000, and the big White among the score in Class VI, listed at under \$4,000. The marking system embraced every point interesting to the prospective buyer. Reliability was rated high in value with 750 marks total, while a further 50 marks were given for ease of starting, any delay in excess of the allowed two minutes each morning



CARS RESTING AT THE PASS OF GLENCOE CONTROL.

causing loss in this section. The timed hill climbs gave 100 marks to the best average performance, with a percentage to the cars coming next in merit, and similar marking rewarded economy in gasoline consumption. Throughout the trial a continuous system of observation was imposed, which pre-

vented any possibility of replenishment or adjustment without marks being deducted.

The usual weighing-in preliminaries were proceeded with on Monday, and the following morning saw the long string of cars wending its way through Glasgow's busy streets. Each vehicle had its official observer on board, the duties of these honorary officials being many and varied. Times had to be booked at each section of the journey, weights of passengers and luggage checked, and at no time was the car to be left unless driver and mechanic obediently followed his lead. The string of cars had a fixed order of starting, varied on subsequent days, and this method prevented the usual scramble for first places which spoils so many of these contests. A fixed minimum and maximum time was made for each section of road, and this likewise deterred the speed proclivities of the faster drivers.

From Glasgow the first day's 170-mile run led past the pleasant country round Loch Lomond to the more mountainous Glencoe, whence the route rounded on itself and went eastward across the South Highlands to Perth. The rough roads that had been selected soon caused trouble. On the big Ford the radiator drain tap worked loose and some delay was occasioned while fresh water supplies were obtained. The 30-40 Maudslay experienced still harder luck. Round a sharp curve the driver steered over the edge of the grass bank and a concealed stone bent the steering connecting rod. Repairs occupied longer time than the maximum allowance for the section, and though this did not involve disqualification other than loss of marks, the car was withdrawn from the run. Together with its companions in misfortune on subsequent days, the Maudslay was driven unofficially over the rest of the course and finished up to time at the week end.

Forty miles out halt was made while the cars were sent up the timed hill climb at one-minute intervals. This ascent of "Rest and Be Thankful," the first of the four big climbs included in the contest, was a severe test both on account of the grade and the winding na-



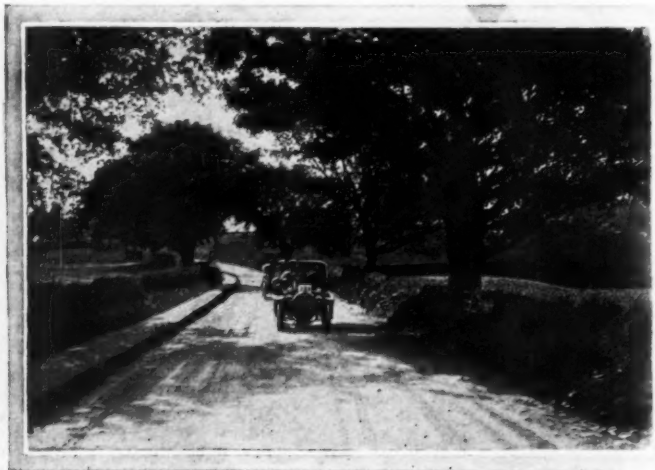
ONE OF THE FIRST ARRIVALS AT INVERNESS.



ON THE CREST OF REST-AND-BE-THANKFUL HILL.

ture of the course. The mile climb, with grades from 1 in 12 to 1 in 7, gave no room for passing, and at the hairpin bend at the summit many of the long wheelbase cars found it necessary to reverse to take the curve. Several inexplicable stoppages which occurred on this climb were afterwards found due to failure of the gasoline supply, and indeed one of the principal lessons drawn from this event has been the liability of trouble through obstructed pipes and faulty arrangement of gravity feed tanks. The results of this climb proved a big victory for Ariels in the three top classes, the Mass, Germain, Calthorpe and Swift taking top positions in Classes IV. to I. The Whites both made good times, though the smaller car was handicapped throughout the tour by the inexperience of its amateur owner, who took the wheel. The 18-horsepower Reo made a good performance, but was balked on the final turn by the St. Vincent car, which it actually bumped before the driver could stop. A second attempt was made, but this did not bring the desired good results. Similar misfortune befell the 40-horsepower Ford. Of the ninety-eight starters a total of fifty-six made complete non-stop runs for this first day and six others experienced but short delay for tires, which was not penalized till the total reached over one hour.

The second day's run to Aberdeen was likewise marred by incessant rain. The continually winding route past Blairgowrie, with its famous beech hedge, led to the famous Devil's Elbow climb up the Spittal of Glenshee, the highest road in the Kingdom. Fortunately for many, this climb was not timed and consequently the frequent halts while the smaller fry were pushed round the worst corners were accepted with complacency. Just at the top of this climb the smaller White had some difficulty with a leaking safety valve and this failure caused its retirement



THROUGH BALLOCK BY THE SHORE OF LOCH LOMOND.

on the following day. The afternoon's run past Balmoral and Stonehaven was entered on in fear by the majority of the competitors, for the famous Cairn O'Mount climb lay before them. With its 20 per cent. pitches this ascent were bad enough at any time, but when the weather has conspired to make the surface inches deep in clay mud, failure need disgrace no car. The story of troubles here would be far too long to recount—even big six-cylinder cars needed an occasional helping hand. The Horbick burnt out its clutch leather in a vain attempt to restart, and similar efforts caused withdrawal of the 40-horsepower Junior and 30-horsepower Mass. The 18-horsepower Reo had its only trouble in the whole of the tour when it shed a passenger for a few yards, and the same may be said of the Cadillac, which here experienced its first delay in any Scottish trial—a total of one minute's stop in three annual events. The 15-horsepower Ford shed but two passengers, and with its normal load easily did the two-mile climb, and likewise the Buick made a very creditable showing.

Thursday's long journey from Aberdeen to Inverness by a circuitous route was favored with better weather, but this small mercy and the absence of a timed ascent were more than compensated for by the mountainous country encountered. The stiff climb up the Bridge of Avon and the consequent descent were noted as the most dangerous part of the tour.

The afternoon's climb up Trinafour Hill was run under a cloudless sky, and with the surface in ideal condition. In Class I. the 15-horsepower Ford did well and easily gained top position, while in the next section the Buick and Reo were respectively placed sixth and eighth. The Mass and the three Ariels took top places in the last four classes, as usual, and the hill climbing prowess of this quartet excited universal admiration. A short but pleasant run led to the resting place at Pitlochry, uneventful but for the differential trouble of the 60-horsepower Belsize, which robbed its driver of the coveted distinction of complete non-stop for the three annual trials. Last day of all, back to smoky Glasgow once again, brought about the resumption of the normal inclement weather conditions. At Aberfeldy came the three-mile climb up Loch Na Craig Hill, with a total rise of over 1,100 feet. The Ford was again well up in Class I. with second award and the Buick and Reo retained their places in the next division. Third section brought out victory for the only lady in the trial and all rejoiced to see Mrs. Riley get top place for her 20-horsepower Belsize after a most persevering run, spoilt only by a single stop of one minute's duration. Mr. Coleman's White met trouble on the hill of such nature that it was fortunate that the day's run was the last of the trip. The feed pump eccentric broke when nearing the summit and a hand-operated arrangement had to be hastily rigged up. For the remaining hundred miles the driver and mechanic heroically pumped with all their might and eventually finished in time after a most arduous day's work.

Back in Glasgow the fuel remaining in the tanks was carefully measured and the cars were then dismissed from their official surveillance. The preliminary non-stop records show surprisingly low numbers, the second day's climb spelling disaster to many who would otherwise have finished without trouble. In the first class no car was able to go through without stop, but both the Cadillac and Jackson cars had only one minute's delay against them. It is greatly to the credit of these smaller cars, however, to note that Class I. was the only section in which every car officially concluded the trial. In Class II. the 12-14 Argyll had a complete non-stop, the Reo coming next with but one minute's delay, together with the 10-12 Darracq. The Buick would similarly have had four non-stops to its credit had not, within the last fifty miles of the trip, a broken spark plug caused further penalization. Class III. had another Argyll as the only successful competitor, but in the next section the Humber, Sunbeam and Austin shared the distinction. The Austin, Straker-Squire and Vinot in Class V., the Berliet and Maudslay in Class VI., and the six-cylinder Hotchkiss in the highest powered division, completed the small list of but eleven cars which came through without stoppage. Seven other cars had but short tire delays.

SOME FACTS PERTAINING TO ELECTRICAL IGNITION*

By HENRY G. CHATAIN, MEMBER SOCIETY AUTOMOBILE ENGINEERS

THE following tests were conducted for the purpose of determining the most favorable operating conditions of a Simms-Bosch low-tension magneto. The magneto is of the inductor type, having a permanent magnet, bipolar field, stationary armature, wound on an I-section core and two revolving inductors, each extending over a quarter of the periphery of the armature. The field pole tips embrace a similar area. The magnetic conditions are shown diagrammatically in Fig. 1, whence it will be seen that

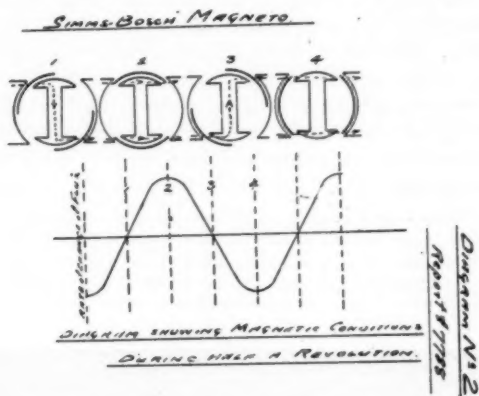


FIG. 1.—Magnetic conditions during half a revolution

there are four maximum and four minimum points of flux through the armature per revolution, giving the magneto a periodicity of two cycles per revolution.

TESTS: The magneto was direct coupled to a D. C. motor, on the shaft of which was mounted a cam which actuated a variable make-and-break ignitor. It should be noted that the cam had two high points utilizing only two (maxima) peaks out of the four produced by the magneto. This was done to facilitate observations. A break of 5-32 inch was maintained throughout the test.

The resistance of the armature at 25° C. was 87.6 ohms.

The curves shown in Figs. 2 and 3 were plotted connecting volts and speed open circuit, and amperes and speed, short-circuited, the magneto running as a single alternator; note the almost constant current. At 340 r. p. m. the short-circuit current

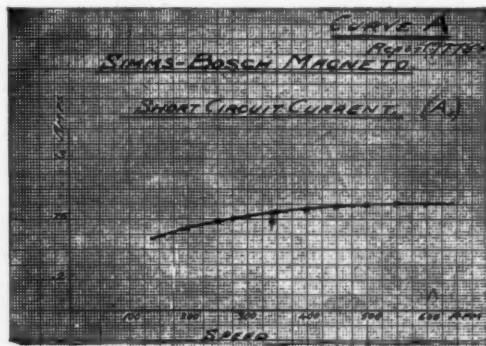


FIG. 2.—Curve illustrating short-circuit current, Bosch magneto.

is .225 amps. and open circuit voltage 98, as read on Thomson A. C. instruments.

Oscillograph records 4 and 5 were taken under the above conditions, showing the actual shapes of the potential and current waves; it will be noted that the potential wave is somewhat different from that usually shown, such as in Fig. 1. In Fig. 6 is

*Extract from paper read before the Society of Automobile Engineers at New York.

shown both current and potential waves taken simultaneously with magneto running at 600 r. p. m.

The magneto was now run with the make-and-break ignitor in circuit and a curve sheet, Fig. 7, was plotted connecting the position of inductor at time of break with amperes registered on an A. C. motor. The lowest point of the wave was reached when the break occurred, while the axis of the inductors was vertical, i.e. the inductors were just covering the portion of the armature

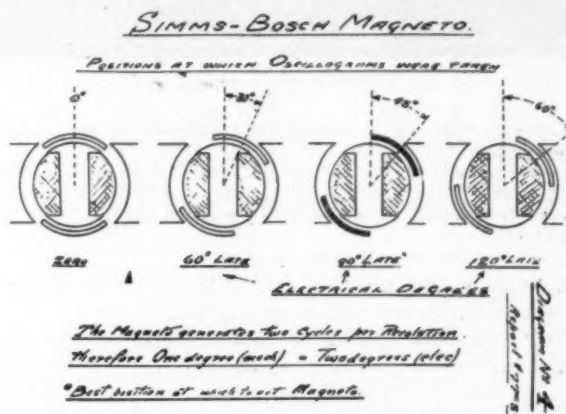


FIG. 9.—Illustrating positions at which oscillograms were taken.

not enclosed by the poles of the field magneto. This point was taken as zero and the subsequent positions of the inductor at break were measured in electrical degrees from this zero.

Returning to Figs. 4 and 5, I would call attention to the shape of these two waves, the potential rising very rapidly and falling off quite as rapidly. The current rises as rapidly, but in contrast the wave does not fall off; this is a fine characteristic, as will readily be seen by inspecting the wave analyzed, as shown in Fig. 8—showing 80 degrees available for producing a spark of approximately the same current.

The positions of the inductor at which the oscillograms were taken are shown in Fig. 9. To avoid confusion the use of the terms "advance" and "retard" with regard to the positions of the inductor has been avoided. Instead the relative positions have been designated "late" and "early," according as the break occurs

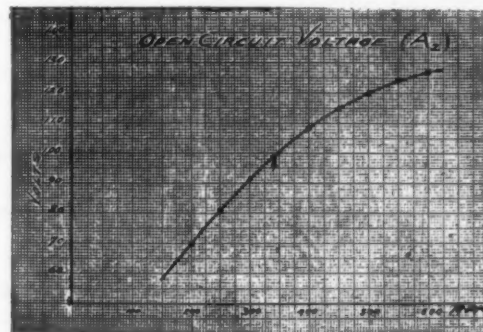
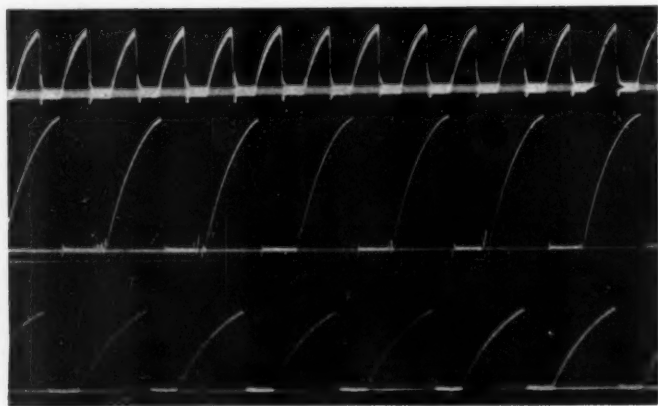


FIG. 3.—Rise of potential on open circuit, Bosch magneto.

later or earlier than the inductor reaches the zero point.

Fig. 10 shows current wave with make-and-break 60 electrical degrees late; note the small negative current to the left of each peak and below the horizontal line. This negative current is better shown in Fig. 11, which also shows potential wave taken simultaneously with the current. With 90 electrical degrees "late" we have a wave as shown in Fig. 12—the varying height of the wave peaks is due to poor contact of the ignitor.



FIGURES 17, 18 AND 19.

FIG. 17.—Kingston Coil. 4 volts on prim.; interrupt. per sec., 89; speed of film, 202 r.p.m.

FIG. 18.—"Apple" Coil. 6 volts on prim.; interrupt. per sec., 94; speed of film, 477 r.p.m.

FIG. 19.—Guenet Coil. 4 volts on prim.; interrupt. per sec., 111; speed of film, 435 r.p.m.

Fig. 13 shows potential and current waves taken 90 electrical degrees late, but at 600 r. p. m. of magneto.

A very interesting diagram is shown in Fig. 14, which shows potential and current 120 electrical degrees late. On the potential wave note rise of potential, then sudden fall; when contact is made then sudden rise again.

An analysis of the oscillograms, Fig. 15, shows the quantity of spark 60° late, which appears to be the best position, but all are so near alike that it may be assumed that anywhere between 60° late and 120° late a uniform spark may be attained.

Tests of Some High-tension Coils.

Passing from the low-tension magneto we will investigate a few of the properties of the high-tension coil with trembler. These tests were originally made with the object in view to determine what was the nature of a spark that attained the best results in the cylinder of a gas engine.

The writer has heard for a number of years the terms "hot spark," "fat spark," etc.; these terms undoubtedly convey an idea, but it would be difficult to design a coil from such data. In attempting to discover what a "fat" spark was, the writer has failed, but in the attempt has succeeded in getting some data relative to spark coils which may prove of interest, and may assist others in the discovery of the "fat" spark.

In the following table is given the Name of Coil and Fig. Number which corresponds to the oscillograph record:

Volts on primary, amperes primary, frequency of vibration of trembler per second, resistance of primary, resistance of secondary:

				Vibration Prim. Sec.		
Fig.	Volts.	Amps.	Trembler.	Per Sec.	Res.	Res.
					Ohms.	Ohms.
Kingston	17			89		
Apple	18	5.20	2.2	94	.171	3715
Guenet	19	3.7	1.31	111	.390	2337
Guenet	20	5.8	....	123	....	2337
Hardy	21	3.78	1.05	122	.274	2779
Fisher	22	5.8	.82	149	.613	2590
Dow	23	3.84	.57	149	.210	5394
Lacoste	24	3.72	1.46	177	.232	2006
Lacoste	25	5.62	1.94	197	.232	2006
Heinze	26	3.66	1.31	210	.320	1302
Pittsfield	27	....	....	228	....	....
Induction Coil Co.	28	3.62	1.55	360	.312	6180
Milwaukee	29	....	....	390	.312	6180

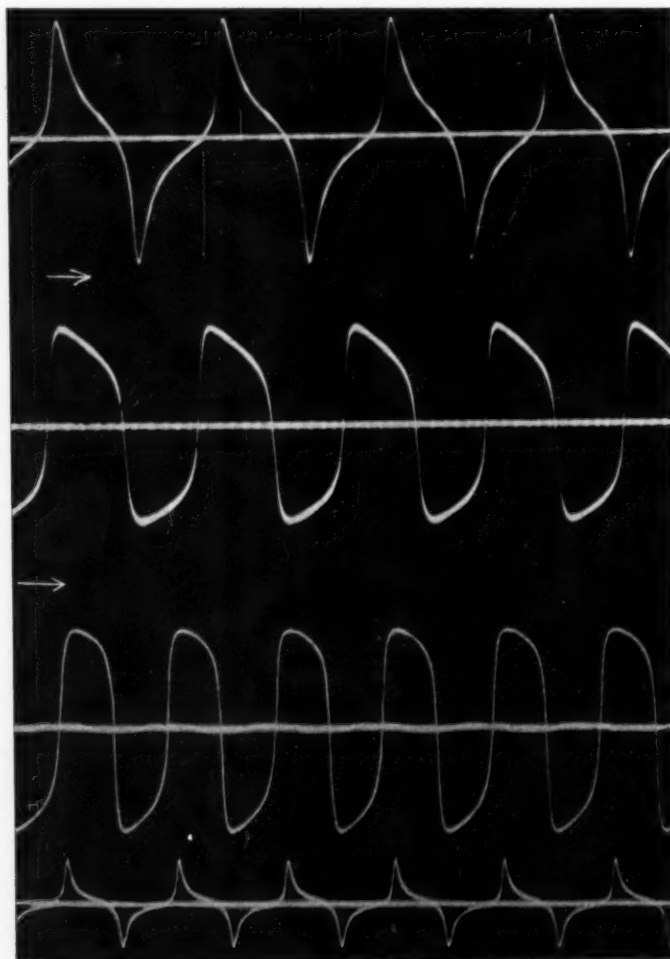
With a trembler vibrating at the rate of 100 per second and a motor turning 1,000 revolutions per minute, assuming that the

first spark occurred at the proper moment, the next spark would occur after the crank had traveled through approximately 61°. With the vibrations twice as rapid, 200 per second, which is more than the average, the crank would travel through 30°, and it is obvious that the second spark would be of little value in case the first did not ignite the gas. It would appear to the writer that the most desirable qualification of a high-tension coil is the regularity of action of the trembler, other conditions being equal, and that it is not necessary to obtain a very high frequency.

Probably the most interesting oscillogram of the high-tension series is the one shown in Fig. 30 with its calibration curve shown in Fig. 31. Here is shown the current waves of both primary and secondary, the upper the primary and the lower the secondary. Note the regularity of action of the trembler as shown by the primary current. In all of the oscillograms shown of the high-tension coils no attention should be given to their relative sizes, as the speed of film varies, likewise the perpendicular calibrations.

Before closing, the writer begs to acknowledge the kindness of Mr. John Taylor, the well-known telephone expert, for the use of his laboratory, and the assistance given by Mr. Richard Amber-ton in conducting tests.

EDITOR'S NOTE.—Mr. Chatain's paper was profusely illustrated by lantern slides referring to tests of the Simms-Bosch magneto as well as of a large number of induction coils, but lack of space makes it impossible to reproduce more than a limited number of those used in the report of the Transactions of the Society of Automobile Engineers, from which the present extract is taken.



FIGURES 4, 5 AND 6.

FIG. 4.—Simms-Bosch magneto, potential wave, open circuit; no make and break. 1 mm. deflection equals 31 volts. Speed, 340 r.p.m.

FIG. 5.—Same. Current wave, short circuit no make and break. 1 mm. deflection equals .0128 ampere. Speed, 340 r.p.m.

FIG. 6.—Same. Current wave (upper), short circuit; potential wave (lower), open circuit. 1 mm. deflection equals .0125 amp. and 37.2 volts. Speed, 600 r.p.m.

NOTES FROM THE SHOP OF AN AMATEUR AUTOIST

By HOWARD GREENE.

MANY men are deterred from using automobiles solely by the fear that the cost of upkeep of a machine will be a constant and serious financial drain—that the first cost of the car will prove to be a comparatively small part of the whole cost of automobiling. It must be admitted that there is some foundation for apprehension; but whether this viewpoint is the correct one or not depends very largely upon the man who buys the car. If he desires to have all the work on his car, except the actual driving, done by others, who must be paid for their services, it will, of course, cost a good hard sum for the season. If, however, he is one of the many who have mechanical tastes, know a little about handling tools and are willing to take care of their own machines—who would rather do their own work than be without their cars—and are willing to take the trouble to become thoroughly acquainted with the details of their machines, he need not go very deeply into his pocket for his fun. A little ingenuity and skill, and a certain amount of willingness to work will take the place of a lot of cash. Moreover, a mechanically inclined man, who can use both hands and brains, can often get a second-hand car for a very reasonable price because of its poor condition, and then overhaul it himself, provided no very exten-

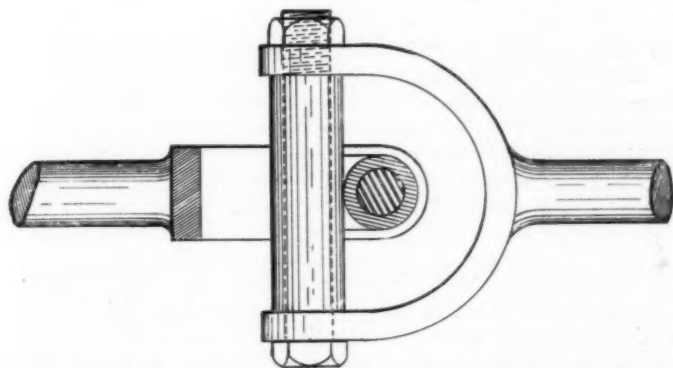


FIG. 1.—How the amateur repair was carried out on the universal.

sive renewals are necessary. Of course, there is a certain risk of accident accompanied by damages beyond the amateur's repairing facilities; but this risk may be very greatly reduced by careful driving. Ordinary small repairs and renewals can be made by the amateur workman at a cost much below the professional repairman's charges. The following examples serve to illustrate the idea and may be useful to someone.

The car in question is a shaft-driven machine. The universal joint at the rear of the gearcase consists of two forks, one on each of the adjoining shaft ends, set at right angles, with a cross-shaped steel casting or forging set between them in such a way that the ends of one of the cross-pieces fit between the jaws of one fork and the ends of the other cross-piece between the jaws of the other fork. The cross-piece ends are held in position, but allowed to swivel by trunnions with threaded parts that screw into the forks, as shown in Fig. 1. The arrangement is a familiar one to automobilists and will be recognized at once. The trunnions are prevented from unscrewing by sheet steel locks fitted over the screw-heads and secured to the forks by a small screw in each.

The trouble, in the first place, arose from the fact that these locks did not always lock. The little screw would work loose and fall out and the lock would follow immediately. Then the trunnion itself would gradually work out. The owner of the car caught trunnions working out three or four times, but while he was meditating upon an improved form of lock one of the trunnions broke off short and the joint let go, making a fierce banging and clattering, but fortunately doing no further damage.

Examination in the shop showed that all the screws were worn loose in their tapped holes, and that they should be replaced by larger ones, with larger trunnion ends to fill the worn holes in the cross-piece ends. But instead of rebuilding the joint in its original form the amateur adopted a plan that gave better results and that cost very little.

A rough forging for the cross-piece was purchased at a cost of seventy-five cents, under the name of an "offset," the two parts being offset from each other and at right angles. Instead of drilling a short distance into each end, a hole was drilled clear through each cross-piece, care being taken to have the holes at right angles, and the holes were reamed

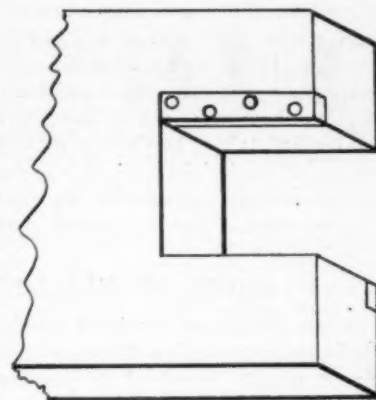


FIG. 2.—The tool steel facing of the coupling, to fit turned steel bolts.

Each bolt passed through the fork ends and the cross-piece between, and its end was screwed into one of the arms, as shown, projecting far enough to take a lock-nut. The new joint has given no trouble and after a season's use is still in good shape, showing little wear and never having caused a minute's delay or anxiety. Moreover, it was silent, whereas the old joint rattled considerably, proving a constant source of annoyance.

Just behind the clutch on the same car is a coupling of a different form, consisting of two slotted members, which lock together as shown in Fig. 2. The abutting parts of this coupling gradually cut into each other until the coupling was loose and rattling. This was cured by chipping out the worn places and fitting in little plates of tool steel, which were riveted in place and filed off flush with the jaws, making the coupling as good as new—in fact, a little better, for the steel inserts were of harder stuff than the jaws and better adapted to resist wear.

The expense of having a set of new bronze bushings made for the gear case—the car was of an early pattern and new parts were not to be had ready made—was avoided by sawing through one side of each of the old bushings and putting a cap-screw through the casing so as to bear on the top of the bushing and close it up

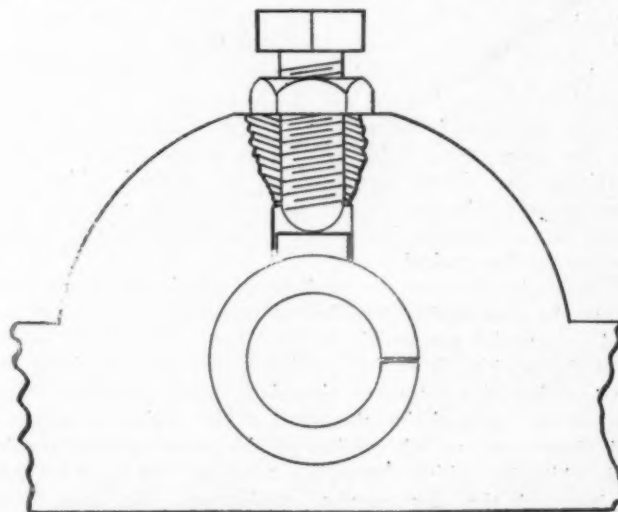


FIG. 3.—An ingenious substitute for new bronze bushings.

when screwed down. In two cases the bushings were rather light and showed a tendency to dent under the pressure of the cap-screw. So the ingenious amateur chipped a recess in the casing to permit the insertion of a small plate of very stiff steel running the length of the bushing and distributing the pressure of the screw (see Fig. 3). While this may seem a very primitive arrangement—and theoretically it is about as crude as possible—still it has worked admirably in actual practice and has made it possible to keep the bearings of the gear-shafts tight and quiet, without any outlay to speak of; the very worst worn of the bushings is good for the rest of this season at the least.

Of course these particular ideas could not be carried out on every car, but doubtless there are some cars where they could be used, perhaps with some modification; and in any case they serve to show what can be done by the combined use of hands and brains. It may be well to call attention to the fact that these are actual repair jobs done by an amateur and that the car is at this moment in commission, so that these suggestions are entirely practical and well worth following.

NOVEL DOUBLE-ACTING MOTOR.

It has often been wondered, particularly by the layman, why the internal combustion motor as applied to the automobile could not be greatly improved by making it double-acting, but to the engineer the difficulties involved have always been considered to be such as to make it not alone impracticable, but as being entirely out of the question in view of space and other limitations imposed by the car. An engine of this type has been built for motor-boat use, but so far as known nothing of the kind has previously been attempted in the shape of an automobile motor until the present, when the Fish Gas Engine Company, of Denver, Col., have devoted themselves to the matter and will shortly place on the market an engine of this type made under their own patents. They are not in a position to publish drawings or illustrations of their new motor at this moment, but the following description of its characteristics and the numerous essential features in which it differs from the standard type will be found of considerable interest:

"This engine is an improvement over the ordinary engine in the following respects," says its inventor: "It has an impulse of the piston at the beginning of every stroke in each direction, giving an action exactly analogous with a steam engine and can be built in single or compound cylinders. The compression spaces of the ordinary engines are removed from the cylinders and fed by a compressor into which the new charge is always taken and from which it is being continually forced into the auxiliary chambers, commonly called compression spaces, which are located in the cylinder head of each end of the cylinder, from which spaces it is admitted to the power cylinder, at the beginning of each stroke, in either direction, through mechanically operated ports of the proper dimensions. These auxiliary chambers are so constructed as to permit the volume being increased or decreased at the will of the operator. It will readily be seen that there being a fixed volume of intake at all times into the compressor, if this volume be forced into a chamber containing say fifteen per cent. of the original volume, the compression will be much higher and a denser gas produced than if this same volume be forced into a chamber containing twenty per cent. of the original.

"The engine is so constructed as to permit the operator to change the compression from half an atmosphere up to any desired compression permissible by the safety valve, or *vice versa*, while the machine is in full operation, this only requiring the mere turning of a three-way air valve. These auxiliary chambers are so arranged that the speed of the engine is increased until four or more full strokes of the power piston may be made while the waiting charge is expanding; that is, if the fuel requires such time for complete combustion. We have found that in moving the piston in the beginning of each stroke, to deliver a given horsepower, we need about one-twelfth the com-

pression required in an ordinary four-cycle engine, and we have also found that to give the gases their proper time for combustion there is absolutely no odor and but little sound coming from the engine, which is not even tapped for an exhaust pipe, to say nothing of a muffler; this being the case, the most inexperienced operator can tell instantly when the timer is delivering the spark at the proper moment to obtain the maximum power from the exploding gas.

"From the carbureter the gas enters the compressor which carries practically the same temperature all the time; here the compression begins and with it the temperature of the gases begins to rise and continues through its entire usage, unless it be when the engine is stopped; even then the stored charge will fire at an indefinitely later period—an experiment showed that we could hold this four days and nights and start the engine on the spark. Under the proper timing of the machine the charge will reach the maximum expansion in about seven-eighths of the piston stroke and deliver the exhaust at practically atmospheric pressure.

"The card taken from operating under these conditions is exactly the reverse of the card taken from a four or two-cycle type of engine; the reason for this almost unbelievable fact is that in the before-mentioned types of engines the gases are ignited while in direct contact with a moving piston, while in this they are only in contact with the piston at the proper point.

"This engine differs from others chiefly in that it is odorless and noiseless, having nineteen points of friction against sixty-five of the ordinary automobile engine of forty horsepower, and kerosene, gasoline, alcohol, distillate, naphtha or crude oil may be used. The engine also requires no change-speed gears, operating almost identically with the steam engine, is reversible and can be operated by an inexperienced person."

This new engine differs so radically from familiar standards that doubtless the majority of autoists will be like the Missourian and want "to be shown" just how it works.

BRISK DEMAND FOR AMERICAN AUTOMOBILES.

In referring to the fact that a considerable number of English inquiries have been received at the Bristol Consulate from American manufacturers regarding motor machines, Consul Lorin A. Lathrop says:

Some American cars have been sold in Bristol and have given satisfaction. Competition increases by leaps and bounds, and I think it quite useless to approach the English market in other than a systematic and determined way. By this I mean a central depot in one of the great centers—London being pre-eminently the place—advertising, travelers, and the systematic establishment of agencies by demonstrators who come along with the car. The industry is developing rapidly in England. It is estimated that \$60,000,000 at least are invested in it, and all the first-class manufacturers are producing at their utmost capacity. It is estimated that some 20,000 motor vehicles of all grades and sizes were turned out in this country in 1906. Over 70,000 cars are now running, and the trade organs expect that this number will be quadrupled within ten years. Distances in Great Britain are so short and roads are so good that it is expected that all but the laboring classes will use motor cars within the lifetime of the present generation. Figures show that imported cars are not holding their own in the rapid increase, but there is a large and growing increase in the importation of "parts of cars." Manufacturers have not yet been able to catch up with the demand for the more expensive car, hence little attention has been given to the cheap, small, and handy vehicles. It is recognized that American manufacturers are ahead with the runabout. France, Belgium, and Italy are competitors with whom we have to reckon in England as well as with the domestic manufacturer.

American manufacturers have achieved great success in motor boats, and there is an excellent market for their product, but not in this consular district. Tidal changes in the Bristol channel are so great as to preclude the use of the small motor boat, and inland waters are shallow and weed infested. Public attention has been drawn to canals of late, and a royal commission has been appointed for examination into the conditions of their maintenance. It is generally believed that inland artificial waterways will be restored and more largely utilized in future. If this well-founded anticipation is realized, the motor boat, both for business and pleasure purposes, will find a considerable market in Bristol.

LETTERS INTERESTING AND INSTRUCTIVE

Will a Four-cylinder Motor Run with No Flywheel?

Editor THE AUTOMOBILE:

[819.]—Some time ago I had an argument with a brother autoist as to the capability of the average four-cylinder motor to run without its flywheel. He contends that it can, and I have taken the opposite stand. We are both quite positive that we are in the right, but though our contention is of somewhat long standing, neither of us has ever been able to substantiate his view beyond a doubt by actually making a test on an engine. As the opportunity to do so would appear to be rather remote at the present writing, it has occurred to me that probably you have seen the matter demonstrated or know of this having been done at some time or other. If not, you can probably support my theoretical stand that the thing is not possible. If you think the matter is of sufficient general interest to your readers, will you kindly give it what attention you think fit?

Tuxedo, New York.

A and B.

Considered merely from the academic point of view, the question is one of more or less general interest, and as such may be answered in the affirmative unequivocally. There is no doubt that a four-cylinder motor of the four-cycle type can be made to turn over without its flywheel, and this would naturally be true to an even greater extent of the two-cycle owing to the greater number of impulses per revolution in the latter. But one case of a motor of the former type having done so ever came to our attention, and the circumstances were more or less similar to those which actuate you in making the inquiry—that is, simply to see if it was possible, as but a moment's consideration is necessary to show that it is not practical. The experiment was tried merely from the promptings of curiosity, which were satisfied by the result, which was in the affirmative. The motor did turn over, but its motion was the jerkiest that could possibly be imagined; it all but came to a dead stop between impulses and then the effect of the explosion was more like that of a projectile leaving a gun than anything else. As each charge was fired there would be an exceedingly quick, sharp stroke, barely sufficing to carry the piston in the next cylinder to fire to the proper point, when it would be repeated, the action of the motor resembling a series of hard blows. Failure to ignite a single charge naturally brought it to a dead standstill, usually about at the end of the compression stroke, so that it was easy to restart it merely by switching on the current. The experiments merely showed that it was possible for a motor of this type to turn over minus its flywheel, but had no other value.

Regarding the Legal Requirements of Several States.

Editor THE AUTOMOBILE:

[820.]—Will you please advise me as to State License Regulations in the States of New York, Connecticut, Massachusetts, Vermont, New Hampshire, Maine, Rhode Island and New Jersey, and in which of these States it is necessary to take out license for passing through; also which of these States recognize a Pennsylvania license? Would also like to know the license requirements of Ontario, Canada.

I will appreciate all information you can give me on this subject.
New Castle, Pa.

JOHN S. OURSLER.

All of the States you mention in your letter will recognize your Pennsylvania license, with the exception of New Jersey, so that it will be unnecessary for you to take out any additional license or register your car in any of these States except Jersey. In the case of Connecticut and Massachusetts, the exemption to non-residents only applies for a period of fifteen days, but as there is no one at the border to record your arrival and departure this section of the automobile legislation in question is of little or no force, so that such States are virtually upon the same basis as New York and others which recognize all foreign licenses indefinitely. In Ontario non-residents are not exempt and application must be made to the Provincial Secretary at Ottawa for registration, which costs \$4.00 for the first year. All of this information, and a great deal more, is presented in convenient tabular form in the Automobile Official Blue Book.

Why Will Some Cars Not Throttle Down Satisfactorily?

Editor THE AUTOMOBILE:

[821.]—I have a four-cylinder gasoline car that is about three to four years old, and that has always given me satisfactory service, except in one particular, and that is the fact that I find it rather difficult to run it slowly on the direct drive. In other words, it will not throttle down satisfactorily, and before I learned its peculiarity in this respect I stalled the engine a good many times—on some occasions in more or less ticklish places, such as in the midst of traffic, when it is not alone awkward, but rather humiliating to have to get out and turn the crank while some irate truckman yells at you to "get a horse."

In order that you may have sufficient information on which to diagnose the case, I will give you a little history concerning the car. I bought it at second-hand two years ago, and its original owner had had it about the same length of time, and had always obtained good service from it, and, in fact, I can say the same of it, ever since it has been in my possession, with the exception just noted. When first turned out it was equipped with a rather complicated system of ignition—in fact, its first owner, who was an electrician, said it resembled a miniature central station more than anything else. There was a small direct-current dynamo placed on one side of the motor and driven at high speed, the latter being regulated by a governor. This dynamo was used to charge two sets of storage batteries, and current was taken from the latter for ignition and possibly also for side lights. On the dashboard there was an automatic switch which threw the dynamo from one set to another as soon as one was fully charged, and which cut both out when it slowed too much, in order to protect them, again closing the circuit automatically when the motor resumed. Probably it also had other functions, but this will be a sufficient description. This switch was enclosed in a brass case with a plate glass front, and is quite as ornamental as it is imposing looking, so that when the remainder of the outfit was removed from the car it was left in place—maybe to mystify the uninitiated. The original owner of the car had the system in question taken off, with the exception of the switch mentioned, and had the engine entirely overhauled and a low-tension magneto put on. This is the shape in which it was when it came into my possession.

I have learned the details of the car pretty thoroughly in other respects, but never have been able to fathom the cause of this refusal to throttle down properly on the high gear, which necessitates the use of the second speed to a great extent when driving in traffic. Can you help me out on this?

LOW TENSION.

Los Angeles, Cal.

Doubtless the fact that the magneto with which your car is equipped will not generate sufficient current to spark the motor when running at a low rate of speed accounts for your inability to throttle it down enough to run through traffic satisfactorily on the high gear. It is not so much a fault of the engine itself as it is of the ignition equipment with which it is fitted. The only remedy would naturally consist in the installation of a battery to take care of the ignition when the motor was running too slowly to make the magneto available, switching back and forth from one to the other as the circumstances required, but only using the battery to avert the necessity of having to resort to the second gear when compelled to drive slowly, as a battery will quickly be exhausted when used in connection with a make-and-break system of ignition. However, fresh dry cells will usually run an ignition system of this kind for from five to ten miles at a time without becoming entirely exhausted, and if only used when the occasion demanded would doubtless give considerable service owing to their great recuperative powers.

What Causes This Hammering or Pounding?

Editor THE AUTOMOBILE:

[822.]—I have been troubled the past few days with a pounding in my engine, and have thus far been unable to discover the reason for same. My auto is a Model C Ford, 10-horsepower, 2-cylinder engine. When running on low gear or on the high gear on good, level roads the engine does not pound. But when I try to climb the least incline on high gear the engine pounds very badly, and also shows a great loss of power, making it necessary to use the low gear. When using the low gear the engine does not pound. The engine seems to pound the same with a small load as it does with a large load. This pounding has troubled me for some time,

and I have tried my best to locate same but so far have been unable to improve upon the action. I have given the oiling unusual care, have had a good mixture, kept the engine cool, have inspected the connections of the cranks to the piston and the shaft and find them all O. K. Have also used the spark advance very moderately, finding, however, that it pounds a great deal worse when advanced too far. Flywheel is tight, and all bearings in apparently good working order. From my opinion I think the trouble, that is the pounding, is in the connection either to the shaft or the piston, of the crank.

Any information that you can lend me through your paper that will assist me in freeing myself of this trouble will be greatly appreciated, and I wish to thank you in advance.

Tracy, Minn.

C. B. PATTRIDGE.

Judging from the description that you give of the pounding that takes place in your engine, we should say it was due to looseness in one or both ends of the connecting rod, i.e. where it is joined to either the crank pin or the piston pin. The fact that the motor only pounds when the load is applied is an almost certain indication of this, and that it does not pound so badly or at all when running on the level or with the low gear in only goes to show that it has not reached a stage where it is sufficiently acute to manifest itself under all conditions. Once under way when running on the level, or with the low gear in on the level, the stored energy of the flywheel practically supplies all the demands for power and the load does not come directly on the pistons; however, with the motor slowed down to take a grade the propulsion of the car devolves directly upon each power stroke of the motor, particularly in the case of single and twin-cylinder motors, in which the power impulses are separated by such wide intervals. Such a state of affairs is indicated by the fact that the car goes forward in jerks when hill-climbing instead of running smoothly without this perceptible effort. This causes a considerable shock to be exerted against the piston and its connections every time the direction of its travel is reversed, so that the slightest amount of play is evident in the shape of a knock. Excessive advance of the ignition also has the same effect for practically the same reason. Some engineers have attempted to differentiate between pounding and hammering, particularly steam users, and the example might well be followed in the case of the automobilist, as in many respects motors of the two classes are subject to the same ills. Hammering is thus employed only to refer to noises generated by mechanical troubles, such as a loose big end, loose piston pin, insecure flywheel and the like, while pounding is something that is the outgrowth of improper conditions in the cylinder, as in the case of the steam engine, where water is imprisoned in the cylinder due to the condensation of the charge left in it when stopped previously or the use of steam that is too wet. In the gasoline motor similar causes are found in running, with the ignition too far advanced, preignition and the like, and the difference would appear to be based on sound and logical reasoning.

Concerning the Route of Last Year's A. A. A. Tour.

Editor THE AUTOMOBILE:

[823.]—Will you kindly let me know through "Letters Interesting and Instructive" in your next issue the route of last year's Glidden tour, and also on what condition an American car can be taken into Canada for about two weeks.

SUBSCRIBER.

The route of last year's tour of the American Automobile Association for the Glidden Trophy was from Buffalo to Bretton Woods, New Hampshire, by way of Rochester, Utica, Saratoga, Elizabethtown, Rouses Point, Montreal, Quebec, Jackman and Rangeley, Maine. This, together with some additional information regarding the event was published in last week's issue of THE AUTOMOBILE, July 11. In order to take an American car into Canada it is necessary to give a bond for its withdrawal from the country at the end of the period named. We have no information at hand as to the exact amount of the bond required, but believe it is nominal and all the details can be arranged right at the frontier, either at Rouses Point or Niagara Falls, in a short time, there being no preliminaries necessary. It is also necessary to take out a local license and pay the usual registration fee, as the Canadian provinces do not exempt non-resident

autoists from the provisions of their automobile laws, regardless of the length of their stay. Like New Jersey and Pennsylvania, which have erected a wall against the autoist which he cannot pass without the proper credentials, a car cannot be driven in or into Canada without these formalities having been complied with. As application must be made to the Provincial Secretary at Ottawa, this should be done some time in advance to avoid delay.

Internal Combustion and Steam Motors Compared.

Editor THE AUTOMOBILE:

[824.]—I have had considerable experience with steam engines for some years past, but am more or less new to the gasoline and kerosene motor, and would like to ask a few questions regarding them on a matter that has puzzled me more or less ever since there has been so much published on the subject of the horsepower of automobile motors. For instance, take a stationary gasoline engine, such as we have here for power purposes. Its dimensions are given as 6-inch bore by 10-inch stroke, and it is rated at 7 horsepower at a speed of about 275 revolutions per minute. We also have a four-cylinder automobile here, the motor dimensions of which are given as bore 4 1/2 inches, stroke 4 3/4 inches, but it is rated at 35 horsepower, which would make the output of each of its cylinders almost 9 horsepower, or considerably in excess of the big 6 by 10 engine, though the latter has tremendous flywheels. To make another comparison, and this is the one that has puzzled me more than the foregoing, a friend of ours has a small steam launch with two cylinders, the dimensions of which, I think, are something like 4 by 6, and he says it develops 25 to 30 horsepower or more. I have no reason to doubt his word on the subject, and I know the launch to be very fast and powerful for its size, but I would like to see an explanation of the reason for the great difference in the power developed by these various engines. Any information you can give through your correspondence department will be appreciated.

A. W. B.

Dubuque, Ia.

Your questions involve the most rudimentary principles of motor design considered generally and regardless of the form of power used, electric excepted of course, and considerable misconception appears to prevail on the subject. To take up the matter of steam and internal combustion prime movers, constituting your last question, when it is borne in mind that the power developed by any type of pressure motor depends entirely on the mean effective pressure exerted on the head of the piston throughout the stroke times the number of strokes the motor makes in a given period, usually a minute, it will not be difficult to differentiate between them. This is the most important factor in any horsepower calculation and is usually referred to as the m. e. p.; it can only be calculated accurately by the use of indicator cards showing the maximum pressure attained in the cylinder and its expansion line down to the point of exhaust, as well as the condition of affairs during the exhaust stroke, as back pressure is sometimes present in the latter to offset the work accomplished on the power stroke. The exact area of these cards is determined with the aid of a planimeter, from which the average pressure on the piston throughout its working stroke is figured, this being the method employed of ascertaining this factor.

In the internal combustion motor this pressure is developed as the result of the explosion, aided by the initial compression given the charge of gas and air, whereas in the steam engine it is entirely a function of the boiler less any losses incurred in the transmission of the steam from the latter to the engine. Thus the launch engine you cite is probably run at a boiler pressure of from 200 to 250 pounds to the square inch and is further a high-speed double-acting engine, receiving four power impulses for every revolution of the crankshaft, so that is in reality the equivalent of an eight-cylinder gasoline engine of practically the same dimensions. The same reasoning applies with equal force to your question concerning the large-cylinder stationary engine and the very much smaller automobile motor, which is nevertheless rated so much higher. As you say, the former travels at a very slow speed, not over 300 r. p. m.; its initial compression will probably not exceed 35 to 50 pounds per square inch at the most, while that of the automobile motor will doubtless be from 60 to 70 pounds and it will make 1,000 r. p. m., thus running more than three times faster. Its m. e. p. will not only be far greater,

but it is also exercised more than three times as often on the head of the piston of the one cylinder which you take to compare with the stationary motor. The flywheel has no direct bearing on the power developed, but influences the steadiness with which the motor runs. A single-cylinder motor naturally requires more weight and a wheel of greater diameter than a four-cylinder engine, due to the great disparity between the number of impulses generated by the two, and there is a far greater difference between the stationary and the automobile motor in this respect. Considerations of space, weight and, more than either of these, the effects of gyroscopic action, combine to limit the size of the flywheel of the automobile motor. There are not alone no such restrictions in the case of the stationary motor, but the latter is also designed to run at a uniform r. p. m. rate.

Correction Regarding Comparison of Steam and Gasoline.

Editor THE AUTOMOBILE:

[825.]-In your issue of July 4, in answer to "Puzzled," appears a statement which should be corrected. I had expected to see a correction in your next issue, but as it did not show up, and as the last ten years of fighting the battle of the combustion engine has given me the habit, I shall take the liberty of correcting the mistake, which consisted of the statement—A single-cylinder, double-acting steam engine is the equivalent of eight four-cycle gas engine cylinders, as far as the number of impulses is concerned. A moment's thought will show that this is not true. Whoever wrote the answer must have confused revolution and cycle.

One double-acting steam cylinder receives the same number of impulses as four four-cycle internal combustion cylinders or as two two-cycle cylinders. And one thing more that is not fair to the internal combustion engine in the same answer—the combustion engine does not receive a series of blows on the piston head—there is quite an appreciable interval of time necessary to burn the whole charge in the cylinder and during this interval the pressure is increasing.

K. G. JOHNSON.

New York City.

As you say, a moment's thought would suffice to show the error of the statement you call attention to, which represents an example of the class of errors that are inadvertently allowed to slip through despite the closest proof reading, and which are bound to occur in a newspaper from time to time. The comparison should naturally have read, either four-cylinder in the case of the gasoline engine, or two-cylinder in the case of the double-acting steam engine, in order to make it correct. However, there was no intention whatever to disparage either of these motive powers in favor of the other, in the latter part of the answer to which you call attention, this comparison being the illustration usually cited to show the relative difference in the action of motors of the two classes, and it must be admitted that the explosion of the internal combustion motor is more in the nature of a blow than is the admission into the cylinder of steam at even the highest pressures used in practice. We are glad to make the correction you refer to and are always pleased to have readers call attention to misstatements or omissions.

A Hardy Annual to the Fore Once More.

Editor THE AUTOMOBILE:

[826.]-I have an argument on with a friend of mine, and the stubbornness with which each maintains his position is doubtless in direct proportion to our mutual ignorance on the subject. I will designate myself as A and my antagonist as B, because I feel quite certain he is in the wrong and should be relegated to second place.

I maintain, first, that a 100 per cent. grade is an incline making an angle of 45 degrees with the horizontal or road line, and, secondly, that there is no authentic record of a car ever having climbed a 50 per cent. grade or better on an ordinary road or under ordinary conditions. I am quite aware that cars have climbed what amount to terrific grades in the shape of specially built wooden inclines and the like—circus stunts they may as well be called, for they do not show what the same car can do on the road.

B holds that a 100 per cent. grade means a perpendicular line and that other grades are in proportion. To make a sort of school-boy simile of it, a man hauling himself up a bar or climbing a rope hand over hand in ascending the equivalent of a 100 per cent. grade. He is also quite certain that 50 per cent. grades are not the extremely uncommon affairs that most engineers claim them to be and that many cars are able to go up them, if not "on the high," at least with credit to themselves and their builders.

As we have, metaphorically speaking, almost come to blows over this subject, a little light on it would be appreciated.

Kansas City, Mo.

A and B.

A is quite correct, a 100 per cent. grade is a 45 degree angle, grade percentages being measured by the number of feet of vertical rise, proportionate to the number of feet of horizontal travel. Fifty per cent. grades are very uncommon, indeed, if not impossible, except on mountain trails and specially prepared inclines, as you mention. We do not know of any car ever having overcome one except in the performance of what you have dubbed "circus stunts." We think B was fittingly put in second place, at least on the matter of grades—a constantly recurring subject of inquiry.

OWNERS' PROTECTIVE ASSOCIATION SUGGESTED

Editor THE AUTOMOBILE:

[827.]-As the result of my arrest at Amityville by no less than five husky deputy sheriffs recently, I wrote a letter of protest to the "Brooklyn Eagle" and to the "Brooklyn Daily Times." While driving along an open stretch of road we were apprehended by a guesswork calculation and on the merest technicality, and it took five officers of the law to see that we got our just deserts for this heinous crime. But it was not until we had run around a good part of the country that we could find a judge at Lindenhurst, who was probably on hand Sunday, as I believe he combines judicial functions with running an ice cream establishment. I was kindly warned that unless I was prepared to give bail I would be locked up, but it was suggested that \$20—it was called a fine—would save me considerable inconvenience, and I was admonished from the bench that I ought to be glad it was not \$50. In interim we (my wife and myself) had been subjected to the indignity of being paraded through the county and compelled to wait for fifteen minutes in front of a low village grocery for the entertainment of the local hoodlums, almost like prisoners in stocks. All this for "covering one-sixteenth of a mile in ten seconds," or the equivalent of 22 miles an hour, which was the charge, though we were actually not exceeding 10 miles an hour.

My letter to the "Eagle" received the attention it merited, but I was surprised to note that a supposedly sane editor, in the case of the "Brooklyn Times," should be guilty of such intemperate language as to compare automobilists with the wild beasts of a cheap Coney Island show, "who must be kept in cages for the good of the community," to quote from the editorial in question. Probably this great editor (?) would evidently like to gather in the automobilists, and after their "being caged" as Bostock's lions, to which he makes reference, charge the public twenty-five cents a head for the privilege of gazing at those suffering from "Mania Automobiliana," this being the caption of his editorial, or, as he elsewhere terms them, "automobile mad gentlemen." Then he and the over-zealous deputies of Long Island might divide the spoils, including the fines, and find it more profitable.

The sheriffs of some counties of Long Island are very busy men these days, hiding behind trees and barns and lying in the tall grass, to see what will fall into their trap. This does not seem like a very dignified occupation for officers of the law toward citizens who are responsible and not in any way intentional lawbreakers. I think the time has come for the owners of automobiles to combine for their mutual protection, and would be pleased to cooperate in organizing an "Automobile Owners' Protective Association," as I believe in this way we will be able to accomplish by combined strength what it is now impossible to do as individuals, and eventually will be able to abolish a great many injustices.

Brooklyn, N. Y.

A SUBSCRIBER.

CORRECTION REGARDING A RECENT PATENT.

Editor THE AUTOMOBILE:

[828.]-I noticed in your issue of June 27, your article covering the patent recently granted me on a combined reverse and differential, and the purpose of which you describe as being the elimination of the reverse pinion from the change speed gear box.

While this application is of advantage, the chief purpose I had in mind in the designing of the invention was for use on different lines, and on which its advantages are more readily apparent. Many medium powered touring cars and runabouts having a shaft drive use the planetary form of change speed gearing, because it is cheap to make, very efficient on high gear, foolproof, and no clashing of gears in changing speeds, but with one or two exceptions they are all limited to two speeds and reverse. This invention of mine provides a simple reverse at the rear axle, and without any increase in size or parts allows the planetary form of change speed, as at present used, to be used, only changed to give three speeds forward instead of the usual two forward and reverse, thus making it equal to the three-speed and reverse sliding change speed gears, for convenience in driving, and retaining the planetary advantages.

WM. A. SALTER.

Cedar Point, Wis.

VARIED HAPPENINGS AMONG THE AUTO CLUBS

California Club's Annual Meet at Del Monte.

DEL MONTE, CAL., July 10.—The first run of the season of the Automobile Club of California consisted of a tour to Del Monte in order to attend the race meet held there on the Fourth. Eight hours were allowed to make the run from San Francisco, and, considering the hard nature of the going from Gilroy to this place, little or no time was given for unexpected repairs, but few of the cars experienced any trouble and all of their occupants reached the Vendome in good season.

The feature of the next day's racing was the event for the Del Monte Cup, which was again captured by Max Rosenfeld, of San Francisco, in a Peerless, it now becoming his property, as this is the third year in succession that he has won it. The final was between Minor's Locomobile and Rosenfeld's Peerless and the race was close for most of the distance, the Peerless getting ahead toward the finish and crossing the line a quarter of a mile in front of the Locomobile in 6:16 $\frac{3}{4}$. The touring car event between Bert Dingley in a Pope-Hartford and a new Thomas 60-horsepower Speedway runabout promised to be of interest, but fell flat owing to a puncture in the gasoline tank of the latter, so that Dingley had no competition. It was the third event that roused the spectators, when the Stevens-Duryea Big Six, which had previously been in hard luck, did such fine work that neither the Packard nor Peerless could get near it, making the best time of the day in 6:06 $\frac{1}{2}$.

The race for touring cars of 24-horsepower and over was won by Welch's Packard in 6:13 $\frac{1}{2}$, while a novel event in the shape of a 100-yard dash for gasoline cars only went to Fleming's Pierce Arrow in 0:11 $\frac{3}{4}$.

In the two-mile race for runabouts of 20-horsepower and under, the victory went to Tony Nichols' 12-horsepower Franklin, with the Moline second, Aerocar third and Locomobile fourth. Time, 3:14 $\frac{3}{4}$. In the 20-horsepower and under touring class, Hendry's Moline won and the latter also carried off the mile speed-judging contest by coming closest to twenty miles an hour for the entire distance.

Good Roads Convention in Springfield This Fall.

SPRINGFIELD, MASS., July 15.—The Automobile Club of Springfield has taken up the subject of good roads in earnest and in furtherance of it will hold a good roads convention here the last week in September. The feature of the convention will consist of the attendance of highway commissioners from New York, New Jersey and the New England States, while delegates from all the automobile clubs within that territory that are affiliated with the American Automobile Association will also attend. A sufficient number of the members of the State highway commissions have already signified their willingness to attend to insure the success of the project. The convention will last for two days and will consist of two business sessions, followed by a banquet. Papers will be read on road building and maintenance, as well as other kindred topics of interest.

Minnesota State Association's Successful Run.

MINNEAPOLIS, July 15.—A two-day run of the Twin City members of the Minnesota State Association has proved to be one of the most successful and enjoyable affairs ever held under the auspices of the latter body. The run was to Mankato, Minn., which was made in a little less than five hours, Louis Piper and William Eastman in a Packard showing the way, while strung behind them were sixteen good-sized touring cars, George Daggett, chairman of the touring committee of the association, bringing up the tail end of the procession, together with a Red Cross car, which, however, was not needed.

Gymkhana Sports of the Rochester Autoists.

ROCHESTER, N. Y., July 15.—The gymkhana sports of the Rochester Automobile Club, which were postponed two weeks ago, were held Saturday at Genesee Valley Park. The weather was ideal and over 6,000 spectators were present. Both sides of the course were lined with automobiles. J. J. Finucane in a Packard runabout car was the star of the day and captured the silver cup trophy in having the most number of points. Finucane won first place in the obstacle race for machines having wheel base of 100 inches or over. He also won the 100-yard dash 50 feet backward contest, the javelin hurling contest, the brake contest, and the flag race. In the last-named race there were three entries—A. M. Zimbrich, Owen DeWitt and J. J. Finucane. The cars were to run at not less than fifteen miles, stop, the operator to pick up a flag and then reverse to the starting point. Zimbrich's car in this event nearly got away from him in picking up the second flag and he recovered it just in time to graze the crowd of spectators. H. G. Strong and Owen DeWitt made a fine showing in tilting the rings. Both were tied for first place and in running off the tie it took two trials, as each captured the ring on the first attempt. DeWitt failed on the second and Strong became winner by annexing the ring this time also. The other events resulted as follows:

Obstacle Race, Class 1—Cars having wheelbase of 100" or over: J. J. Finucane, Packard, first, time 12 1-2 seconds; W. W. Powers, Packard, second; J. Seward Summers, Ford, 6-cylinder, third. Class 2—Wheelbase under 100": H. G. Strong, Franklin, first; time, 13 1-2 seconds; A. M. Zimbrich, Stoddard-Dayton, second.

Quarter-mile Time Contest—Contestant running closest to ten miles an hour, or 1 minute 30 seconds for the quarter mile, to win: E. Franklin Brewster, Stoddard-Dayton, first, time 1 min. 34 sec.; A. M. Zimbrich, Stoddard-Dayton, second, time 1:24.

One Hundred Yard Dash—Running left wheels on plank for distance of 25 yards: W. L. Smith, Pope-Hartford, first, 10 1-5 seconds; R. F. Ford, second; J. Foster Warner, Stevens-Duryea, third.

Dropping Potatoes in Basket—100 yards, flying start: E. Franklin Brewster, first, two potatoes in basket in 14 1-2 seconds' time; J. W. Cook, Franklin, second; J. Foster Warner, third.

Brake Test—Cars to speed for 100 yards and stop at line: First, J. J. Finucane, stopped on line, time 9 seconds; second, E. F. Brewster, stopped on line, time 15 1-2 seconds; third, J. W. Cook, Franklin.

Balancing Contest—Cars to carry pail filled with 30 pounds water up and down teeter board. J. H. Schoenholt, Buick, first, spilled 3 1-4 pounds; A. M. Zimbrich, second, 4 pounds; H. R. Gragg, Premier, third.

Worcester Club Undertakes Task of Road Marking.

WORCESTER, MASS., July 15.—President John P. Coghlin, of the Worcester Automobile Club, has just received a supply of the white enamel signs approved by the Massachusetts Automobile Association last spring and will shortly begin the work of posting the central Massachusetts highways. They measure 12 by 24 inches and carry blue letters and figures on a white ground, bearing the name of the Massachusetts Association and the monogram of the American Automobile Association, in addition to the warning conveyed. They will be posted near sharp curves and bad places in the highway, and the location of each sign will be reported to the State Highway Commission for approval, which, if granted, will make it permanent. Otherwise it will be removed. A second lot of signs of the same character, bearing under the seal of the A. A. A. the information "Endorsed by the Massachusetts State A. A.," are intended to be attached to already existing signs. President Coghlin will pay attention to the main route from Boston to New York in his territory at first, supplementing the work already done by the A. C. A. The portion of Massachusetts lying east of Framingham will be posted by President Lewis R. Speare, of the Bay State Automobile Association of Boston, while that part lying

west of Palmer will be taken in hand by ex-Président S. L. Haynes, of the Springfield Automobile Club, these gentlemen forming the signs committee of the Massachusetts Association.

Worcester police started taking time of autoists on city streets Saturday. One course is on Main street north from the Hotel Standish, on the main through route between New York and Boston. The other is on the route from Worcester to Lowell, Nashua and eastern points, just north of Lincoln Square. Notices of these traps were immediately sent to other automobile clubs and the State Association.

President John P. Coglin, of Worcester Club, and John S. Harrington have established their summer home at Watch Hill, R. I., and drive there, 108 miles, Saturdays, and return Monday mornings.

Harry F. Estey, for two years a member of Worcester Automobile Club, and during that time a partner of Thorvald Hanson in the Palace Auto Station, 32 Hermon street, died Saturday night of Bright's disease, aged forty-one years. He was a native of Lancaster, Mass., and before going into the automobile business was connected with Kinnicutt & DeWitt, bankers.

Youngstown Autoists Organize a Club.

YOUNGSTOWN, O., July 15.—With the election of a board of trustees at a meeting recently held at the Youngstown Club by a number of enthusiastic autoists of this city, the Youngstown Automobile Club came into existence. The trustees are James A. Campbell, C. A. Cocaran, J. R. Squires, Dr. C. R. Clark, Dr. W. H. Bilchner, D. B. Klingensmith and George Day. A constitution and by-laws for the newly formed organization were adopted at the same meeting and the board of trustees will meet within a short time to elect the officers.

Holyoke to Have an Automobile Club.

HOLYOKE, MASS., July 15.—Holyoke has long wanted an automobile club and now the desire of enthusiastic followers of the car in this district are to have their wishes gratified. At the organization meeting which took place at the Hotel Hamlin the Massachusetts State Automobile Association was represented by Secretary James Fortescue, while a number of prominent members of the association were present, as well as a delegation from the Springfield Automobile Club. The new club has a membership of about 100.

CLUB DOINGS IN GENERAL.

PUEBLO, COLO., July 11.—The Arkansas Valley Automobile Club has been organized and incorporated here with the following named as incorporators: F. A. Kettler, W. L. Hartman and H. E. Brayton.

AKRON, O.—At a meeting of the Akron Automobile Club, held last Friday, a committee was appointed to confer with the city authorities to secure the enactment of a more liberal ordinance, one embodying general regulations without reference to speed alone.

ST. LOUIS.—The Automobile Club of St. Louis will place signs on the country roads hereabouts every mile, bearing hieroglyphics designating the distance to the nearest town, kind of road, and whether it is best to drive fast or slow. Other counties are arranging to adopt the plan. A printed key to interpret the signs will be furnished automobilists desiring same.

NEW YORK.—The City and Country Motor Club of New York has just added new suburban clubrooms to its facilities, the latest addition consisting of a suite of rooms at the Terre Marine Inn, Staten Island, facing the bay. The club has now three out-of-town assembly places, in addition to its headquarters at 309 West 109th street. Large accessions to its membership have been recorded within the last few weeks.

THE AUTOMOBILE CALENDAR.

AMERICAN.

Shows and Meetings.

- Oct. 24-31.....—New York City, Grand Central Palace, Eighth Annual Automobile Show, Automobile Club of America and the American Motor Car Manufacturers' Association.
- Oct. 31-Nov. 7.....—New York City, Madison Square Garden, Eighth Annual Automobile Show, Association of Licensed Automobile Manufacturers.
- Nov. 30-Dec. 7.....—Chicago, Colliseum and First Regt. Armory, Eighth Annual National Automobile Show, and First Annual Commercial Vehicle Show, National Association of Automobile Manufacturers.
- Dec. 28-Jan. 4.....—New York City, Madison Square Garden, Importers' Salon. C. R. Mabley, secretary and manager.

Races, Hill-Climbs, etc.

- July 25-28.....—Providence, R. I., Annual Meet of the Federation of American Motorcyclists.
- July 26.....—Reading, Pa., Automobile Carnival and Races, Berks County Fair Grounds Track, Reading Automobile Racing Association.
- July 27.....—Schooley Mountain Hill Climb, near German Valley, N. J. W. J. Morgan, manager, Bretton Hall, New York City.
- Aug. 1.....—Algonquin, Ill., Hill Climb, Chicago Motor Club and Chicago Automobile Trade Association.
- Aug. 5-10.....—Atlantic City, N. J., Automobile Carnival, Atlantic City Automobile Club.
- Aug. 9-10.....—New York City, Brighton Beach Track, 24-hour Automobile Race, United States Motor Racing Association.
- Sept. 2.....—Bridgeport, Conn., Labor Day Hill Climb, Sport Hill, Bridgeport Automobile Club.
- Sept. 5.....—Chicago, Cedar Lake Economy Run, Chicago Motor Club and Chicago Automobile Trade Ass'n.
- Sept. 14.....—Albany, N. Y., 95-mile Road Race, under the auspices of the Albany Automobile Club.
- Oct. 19.....—St. Louis, Mo., International Aerial Race of the Gordon Bennett Prize, Aero Club of America.

Motor Boat Races.

- July 20.....—New York to Marblehead, Mass., 270-mile Motor Boat Race, New Rochelle Yacht Club.
- Aug. 13-15.....—Chippewa Bay, St. Lawrence River, Gold Challenge Cup Race, American Power Boat Ass'n.
- Aug. 22.....—New York to Jamestown (Va.), Annual Cruise, American Power Boat Association.
- Sept. 2-6.....—Jamestown (Va.) Exposition Motor Boat Races.

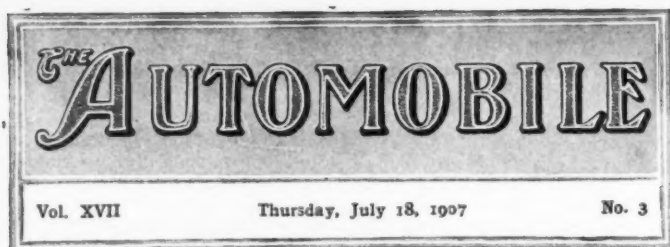
FOREIGN.

Shows.

- Sept. 28-Oct. 7.....—Denmark, Copenhagen International Automobile Show.
- Nov. 11-23.....—London, Olympia Motor Show.
- Nov. 12-Dec. 1.....—Paris, Exposition Decennale de l'Automobile, Grand Palais, Esplanade des Invalides, Automobile Club of France.

Races, Hill-Climbs, etc.

- July 25.....—Ardennes Circuit, Belgium (German rules).
- July 26.....—Ardennes Circuit, Belgium (Tourists).
- July 27.....—Ardennes Circuit, Belgium (Grand Prix rules).
- July 31-Aug. 8.....—Belgium Regularity Contest for Touring Cars, A. C. of Belgium.
- Aug. 1-7.....—Criterium of France, 1,750 Miles Touring Competition and 250-mile Race for the Press Cup, A. C. of France.
- Aug. 3.....—Isle of Wight, British International Cup, Motor Boat Race.
- Aug. 11-29.....—France, Coupe de Auvergne.
- Sept. 1-2.....—Italy, Brescia Circuit, Florio Cup. A. C. of Italy.
- Sept. 15.....—Austria, Semmering Hill Climb, Austrian Automobile Club.
- Oct. 1-15.....—Paris, Electric Vehicle Competition, Automobile Club of France.
- Oct. 13.....—France, near Paris, Dourdan Kilometer Speed Tests.
- Oct. 20.....—France, Gaillon Hill Climb.
- Nov. 1-15.....—France, Voiturette Contest near Paris.
- July 14, 1908.....—Paris to London, Aerial Race.



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SPECIAL ANNOUNCEMENT.

We desire to inform our readers that we have purchased the "Automobile Magazine," with copyrights, cuts, advertising contracts and its entire subscription list, and the same will be consolidated with THE AUTOMOBILE. The "Automobile Magazine" has been published for the past nine years, and was the second automobile publication established in the United States.

THE AUTOMOBILE (published weekly) is to-day the outgrowth of the following consolidations: The Motor Review (weekly) and The Automobile (monthly), May, 1902; Dealer and Repairman (monthly), October, 1903; and The Automobile Magazine (monthly), July, 1907.

THE CLASS JOURNAL COMPANY,

Flatiron Building,
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Publishers of
THE AUTOMOBILE.

Dated July 18, 1907.

Time to Give the Tire Maker His Due.

The present season has been marked by a number of prominent contests of a degree of importance unequalled in past years, and in every one of them the performance of the competing cars has been a matter for congratulation. Beginning with the Targa Florio, probably the most severe racing test of a car ever held, but which suffers somewhat from the remoteness of its venue, down through the many road races and endurance tours such as the Emperor's Cup, the Herkomer, the Tourist Trophy, the Grand Prix, the Sealed Bonnet Contest, the Scottish Reliability Trials, and a number of others recently reported, the uniformly excellent showing of the cars as a whole has been little short of marvelous, while the accidents that befell the unfortunates have been of such a trivial character on the whole as to constitute prac-

tically a negligible factor when calculating auto reliability. But in none of them has the tire maker received his due. Tire trouble there was and always will be, as a matter of course, but the manner in which it has been minimized by the study and improvement lavished upon his product by the maker has never been more strikingly illustrated than during the past season. Tire troubles formed a comparatively insignificant cause of delay in such exceedingly strenuous races as the Targa Florio, Grand Prix and Emperor's Cup. In the Herkomer, the Tourist Trophy and the Scottish Reliability Runs, and particularly the last-named, there was so little as to call forth almost universal comment in the reports of these events, while the climax may be said to have been reached in S. F. Edge's recent startling performance at Brooklands, when a single set of tires was run for 500 miles at an average considerably in excess of sixty miles an hour, and were then only changed as a matter of precaution, though the severity of the duty imposed upon them may be gauged from the fact that the pace caused the dissolution of the specially prepared roadway of cement at the banked turns in a manner that showed it was never intended for such gruelling. Doubtless the outcome of the present A. A. A. tour now under way, and which passes over some pretty rough country, will but add another triumph to the already long list. It is certainly time that the tire maker was given his full due instead of being eternally blamed for the inherent weakness of his product.

Clearing the Dash of Its Useless Encumbrances.

Early builders doubtless were of the opinion that a multitude of impressive looking devices spread upon the dash of a car gave it an air of mystery and clothed the manipulator of such an imposing array with a degree of importance that was far from genuine. The art of properly driving and maintaining an automobile on the road is one requiring far more than the modicum of skill which is the sole asset of many handlers of the wheel, but the task does not gain in importance or rank by reason of such an appeal to the uninitiated observer, who, after all, is the only one thus awed. It will be recalled that a Windy City autoist, not content with the manufacturer's efforts in this direction, set the extreme of fashion in this respect.

Fortunately, the precedent thus attempted to be established was not followed in other instances, and since that time the makers themselves have been aiming in the opposite direction, so that it is now nothing unusual to see a car of recent date with nothing more than the coil and a single sight feed on the dash. There is usually also a switch, but generally it is combined with the coil box. With the limitations imposed by present methods of construction this probably represents the extreme of simplicity now attainable, but that there is a tendency on the part of designers to pattern after the example cited anyone who has observed the dashes of the most recent models and compared them with those of former years cannot have failed to remark. The tendency is one in the direction of simplicity that is to be commended.

Has the Limit of Weight per Horsepower Been Reached?

It is not long ago that the advent of what has since developed into a special form of the internal combustion motor for aviation created considerable of a stir by the extreme it appeared to represent in the way of an approach to the minimum amount of weight per horsepower. To go back quite a few years, it will be realized that the standard automobile motor of to-day scarcely weighs any more per horsepower, if as much, as did some of these early attempts at building light motors that were universally regarded as freaks. Ten pounds per horsepower was at one time regarded as a perilous approach to a low limit in this respect, but to-day there are few automobile motors that exceed this. Since then the limit has receded, pound by pound, until it is now considerably less than half this standard, as represented by a French motor recently constructed for aviation and rated at 35 horsepower on slightly less than a hundredweight of metal.

OHIO A. A. STATE ASSOCIATION MEETING.

CLEVELAND, O., July 15.—The annual meeting of the Ohio State Automobile Association was held at the Hollenden Hotel last Wednesday, representatives from Cleveland, Akron, Cincinnati, Elyria, Lima, Youngstown and Springfield being in attendance. The election of officers for the ensuing year resulted as follows: President, F. T. Sholes, of Cleveland; first vice-president, T. Neff, Cincinnati; second vice-president, T. Arthbert, Lima; third vice-president, G. E. Mental, Springfield; fourth vice-president, A. L. Garford, Elyria; fifth vice president, Dr. L. S. Colter, Cincinnati; secretary, Henry H. Hower, Cleveland.

Plans for the strengthening of the organization in the Buckeye State were discussed at length, and it is the intention of the new board of officers to make the association a powerful factor in legislative and road improvement matters. Energetic steps will be taken at once to organize clubs in Toledo and Columbus, and have them join the State body. The following standing committees were selected:

Executive—George Collister, Cleveland; H. L. Morse, Cincinnati; Windsor T. White, Cleveland; Val Duttonhofer, Cincinnati; A. Ward Foote, Cleveland.

Good Roads—Asa Goddard, Cleveland; M. P. Colt, Lima; J. L. Elliot, Springfield; W. P. Murray, Cleveland; Harry Crane, Cincinnati.

Legislative—W. Smith, Cincinnati; C. D. Crites, Lima; H. H. Johnson, Cleveland; H. Vail, Cleveland; Paul Staley, Springfield.

Membership—Dr. L. S. Colter, Cincinnati; E. R. Curtis, Lima; George E. Mental, Springfield; Walter C. Baker, Cleveland; H. Andrews, Elyria.

TEXAS AUTOMOBILE LAW GOES INTO EFFECT.

DALLAS, TEXAS, July 13.—House Bill No. 93, introduced by Representative Ridgway, and passed by the last Legislature, went into effect in Texas yesterday, and owners of automobiles must register them with the County Clerk of the counties in which they reside. Section 1 of the bill provides that "all owners of automobiles or motor vehicles shall, before using such vehicles or machines on the public roads, streets or driveways, register with the County Clerk of the county in which he resides. As owner, each name shall be registered by the county clerk in consecutive order in a book to be kept for that purpose, and shall be numbered in the order of their registration; and it shall be the duty of such owner or owners to display in a conspicuous place on said machine the number so registered, which number shall be in figures not less than six inches in height. The county clerk shall be paid by such owner or owners a fee of 50 cents for each machine registered."

The penalty for failure to register with the county clerk is fixed at not less than \$5 nor more than \$100.

CONNECTICUT WILL TRY NO SPEED LIMIT LAW.

HARTFORD, CONN., July 15.—The new automobile law which passed the Senate on Tuesday of last week was passed by the House the following Thursday. Representative Allerton, of the Committee on Roads, Rivers and Bridges, stands as sponsor for the bill, and says that it will bring at least \$40,000 a year in revenue to the State in registration fees. In the opinion of members of the General Assembly who are familiar with highway conditions, the new law embraces some of the best features of automobile legislation in the country. The bill has no prohibitive clauses on speed, except that it says that a machine running at a greater speed than twenty-five miles an hour for a distance of an eighth of a mile is being recklessly driven as regards the rights of others. The Governor, it is thought, will approve the measure, and if it goes into effect its working will doubtless be closely watched by autoists throughout the country, as a precedent of this kind has long been wanted in order to demonstrate the absurdity of the arbitrary limits now enforced.

FRELINGHUYSEN OPPOSES VANDERBILT RACE.

PLAINFIELD, N. J., July 15.—Due to his absence in Chicago, during much of the time of which he has been ill, State Senator Frelinghuysen has not been aware of the propaganda afoot to hold the Vanderbilt Cup race in this State in October, but has been immediately galvanized into life on hearing of it. He sent a telegram to the Senate without delay, protesting against its proposed action permitting the race to be held, and gave out a statement for publication in which he expresses himself as being strenuously opposed to the race. It reads in part as follows:

"I am violently opposed to any change in the automobile law, believing that the safety of human life is at stake, and the protection of our people is more important than the mercenary motives of a few and the satisfaction of the sporting instinct of the automobilists.

"I have been informed that the press of the State is almost unanimous in scoring the proposition to suspend the Frelinghuysen law and it shows conclusively that the contest is not wanted."

MASSACHUSETTS' ACTIVE SIGN CAMPAIGN.

BOSTON, July 15.—Bay State autoists are being called upon by the Massachusetts State Automobile Association, through its secretary, J. Fortesque, to co-operate with that organization in seeing that the signs called for by regulations and by-laws of the Commonwealth of Massachusetts relative to ways and bridges, are complied with. The legislation in question calls for the erection and maintenance of suitable guide posts by all towns with a penalty of \$5 for each omission or neglect to maintain the signs thus erected. As it is the duty of the various towns to attend to this matter, the association is calling on its members to report instances of any failure to do so. The sections of the law covering it are being sent out together with the letters. They read as follows:

Section 1.—Every city and town shall erect and maintain guide posts on the ways therein, at such places as are convenient for the direction of travelers, and at such forks and intersections of ways which lead to adjoining cities or towns.

Section 2.—Upon such guide posts shall be stated the name of the city or town or place to which each road leads and the distance to the same.

Section 3.—Every city or town which neglects to erect and maintain such guide posts, or a suitable substitute therefor, shall annually forfeit five dollars for every guide post which it so neglects to maintain.

PREPARATIONS FOR INDEPENDENT'S SHOW.

Compared with former years, it seems a trifle early to be making show preparations at the moment, but as the combined show of the Automobile Club of America and the American Motor Car Manufacturers' Association and the Motor and Accessory Manufacturers, Inc., takes place from October 24 to 31 this year, there is good reason for it. Members of the A. M. C. M. A. have already contracted for fully 85 per cent. of the main floor space of the Palace, which may be taken to indicate that their displays will be more elaborate than ever this year. As 1908 cars will probably be on the market by the end of August, there should be no delay in getting the exhibits ready.

M. AND A. M. TO EXHIBIT AT IMPORTERS' SALON.

At the joint meeting of the show committee of the Importers' Automobile Salon and of the Motor and Accessory Manufacturers, Inc., which was held last week, an agreement was reached by which the importers' show, to be held in January next at Madison Square Garden, will receive the sanction of the accessory makers, many of the members of their association having already requested the reservation of space pending the granting of the necessary approval. A large number of others have deferred the announcement of their intention to exhibit at this show until the fact that their association had definitely decided to grant it a sanction was made public, so there will doubtless be a representative showing.

ALUMINUM FOR AUTOMOBILE CASTINGS

By E. BLOUGH, CHIEF CHEMIST OF THE ALUMINUM COMPANY OF AMERICA.

CONSIDERABLE misapprehension exists in the minds of automobile manufacturers regarding the characteristics of aluminum alloys, erroneous statements regarding their properties having appeared in a number of automobile journals. Even in the pages of THE AUTOMOBILE the tensile strength has been given as low as 9,000 pounds per square inch, and the statement made that such results are obtained in general foundry practice. The writer has had opportunity to do a great deal of work on aluminum casting alloys and has been in close touch with actual practice in this country and abroad and can state that a tensile strength much higher than 9,000 pounds can and should be obtained in regular foundry practice.

Pure aluminum can be cast into a number of articles, but it is not adaptable to general automobile work on account of high elongation and consequent lack of rigidity. However, when suitable alloying ingredients are added to pure aluminum the strength is immediately increased, as is also the resistance to deformation under stress. The alloying ingredients cannot be added indiscriminately and alloys secured with mechanical properties satisfactory for automobile work. Indiscriminate addition of alloying metals is very likely to produce alloys which are difficult to use in the foundry, due to high shrinkage, brittleness, crystallization, segregation, etc. For the above reasons satisfactory alloys are only obtained after careful and thorough study of the whole range of commercial possibilities. The addition of too small an amount of alloying ingredient will produce an alloy of too high shrinkage. When this alloy is cast it may crack in the flask. The shrinkage, on the other hand, may not be serious enough to produce this result, but may cause a casting strain which will only develop into a visible defect when the casting has been put into service. On account of the neglect of systematic investigation, as applied to developing proper alloys and the application of experienced engineering ability, many varying and indifferent results have been obtained from aluminum castings.

Considerable care must be taken with the casting of test bars in regard to their form and gating and the location of risers so that unequal strains are not produced and totally erroneous results obtained. It has been found that very sharp fillets will

cause them to break almost invariably at the fillet, due to the fact that the test bar on cooling caused a shrinkage strain to be produced in the fillet. It is very obvious that results from such abnormal bars should not be taken as criteria on the quality of the metal. Improper placing of gates and risers can produce the same result and must be guarded against.

The first step in automobile casting is the selection of the proper alloy. The physical properties of the aluminum alloys can be influenced to a very great degree by the addition of alloying metals. However, it has been found by experiment and long experience that the useful alloys are limited to certain compositions, which, however, have practicable variations.

Having selected the alloy which will meet the required conditions, the fulfilling of these conditions depends wholly upon the manipulation of the metal in the foundry. Given the proper alloy, ordinary foundry practice with reasonable care in moulding and melting will give uniformly good results. With extraordinary care and special methods of moulding, even better results can be obtained.

An aluminum alloy having the proper composition for the general run of automobile castings will have the following physical properties:

Tensile Strength	Elastic Limit	Elongation	Specific Gravity.	Shrinkage
lbs. per sq. in.	lbs. per sq. in.	in 8 in.		in 1 ft.
21,000	12,000	1.4 per cent.	2.82	12/64 in.

Another alloy which has been in successful use for many years has the following properties:

Tensile Strength	Elastic Limit	Elongation	Specific Gravity.	Shrinkage
lbs. per sq. in.	lbs. per sq. in.	in 8 in.		in 1 ft.
29,000	16,000	0.50 per cent.	2.99	11/64 in.

There are other alloys possessing still higher tensile strength, among which there is one having a tensile strength of about 42,000 pounds per square inch and an elongation of about 0.8 per cent. in 8 inches. However, it does not follow that the alloy with the highest tensile strength is the most suitable for any particular casting. The alloy to be used will depend a great deal upon the nature of the casting itself, as well as the nature of the service for which it is intended to be utilized.

PATENT RIGHTS OF EMPLOYEES DEFINED.

WASHINGTON, D. C., July 14.—Inventors in the automobile world will be interested in a recent decision of the Court of Appeals of the District of Columbia, wherein the court ruled as follows:

"Inventors are often compelled to have their conceptions embodied in construction by skilled mechanics and manufacturers, whose practical knowledge often enables them to suggest and make valuable improvements in simplifying and perfecting machines or devices, and the inventor is entitled to protection from their efforts to claim his invention. At the same time an employee is to be protected from the rapacity of his employer also, and if in doing the work assigned him the employee goes further than mechanical skill enables him to do and makes an actual invention he is equally entitled to the benefit of his invention.

"Where an employee claims protection for an improvement which he devised while working upon a general conception of his employer, the burden is generally upon him to show that he made an invention in fact.

"To claim the benefit of the employee's skill and achievement, it is not sufficient that the employer had in mind a desired result and employed one to devise means for its accomplishment. He must show that he had an idea of the means to accomplish the particular result, which he communicated to the employee, in such detail as to enable the matter to embody the same in some practical form.

"The reduction to practice of an invention by an original inventor cannot be taken as a reduction to practice by another merely because the ownership of the claims of both may afterward become vested in the same person or persons. * * *

UTILITY AUTOS ON PACIFIC COAST.

SEATTLE, WASH., May 27.—The automobile has commenced to supplant the historic and picturesque stagecoach in the Pacific Northwest, the greatest activity along this line being in British Columbia and the Kootenay country. An experiment was conducted last year by the operators of the stage from Nanaimo to Alberni on Vancouver Island, a distance of 25 miles, and proved a success. This season two large cars have been added for passenger purposes and a Knox truck for baggage. Several cars are already operating between Victoria and Saanich, a distance of eight miles, the demand for this method of transportation being great, as well as rapidly on the increase.

The British Columbia State company has provided autos to cover the stretch between Vernon and Pentteton, eight miles, and two routes out of Kamloops will mean daily runs for each car of 40 miles. From New Westminster to Port Moody, a distance of 8 miles, the auto appears to have a cinch on business, as the country is too hilly to ever be covered with electric lines. A large number of cars are now being used for sightseeing purposes out of Victoria. By this method it is possible for tourists to visit many of the picturesque spots of the island. The most recent line installed in Washington is between Everett, Hartford and Granite Falls, the autos meeting all trains at Hartford. At the present rate of increase the automobile stage will soon have a monopoly.



JUDGING from present indications it would seem as if 1908 were to be a six-cylinder year. It is evident that the uncertainty concerning this situation which prevailed last winter has been settled in favor of this type, as a large number of the old established makers who were on the fence, so to speak, when the six-cylinder motor was in question have resolved their doubts by announcing the addition of a car of this kind to their 1908 line, though their allegiance to the four-cylinder is unshaken. Besides these, there are a number of new makers who have come into the field with six-cylinder cars as the main feature of their production. The latest of these to make its appearance is the D. L. G., which hails from St. Louis, its initialed title representing the names of its builders, who are A. L. Dyke, B. Leibert and V. R. Givens, forming the D. L. G. Motor Car Company of that city, with headquarters at 3932 Olive street.

As will be seen by the illustration heading this page, a high-speed runabout on attractive lines is also to be a feature of the line, the chassis being the same in each case with the exception that its wheelbase is shorter by 17 inches than that of the touring car. Interest naturally centers about the motor, which has its cylinders cast in pairs with a somewhat unique valve arrangement in that the exhaust is situated on the righthand side and is operated direct while the inlet is situated in the center of the cylinder head and is actuated by a rocker arm. The carbureter

is of the automatic type, while a Simms-Bosch high-tension magneto takes care of the essential of ignition, and a McCord ten-feed mechanical oiler supplies the lubrication, four of the leads being taken di-

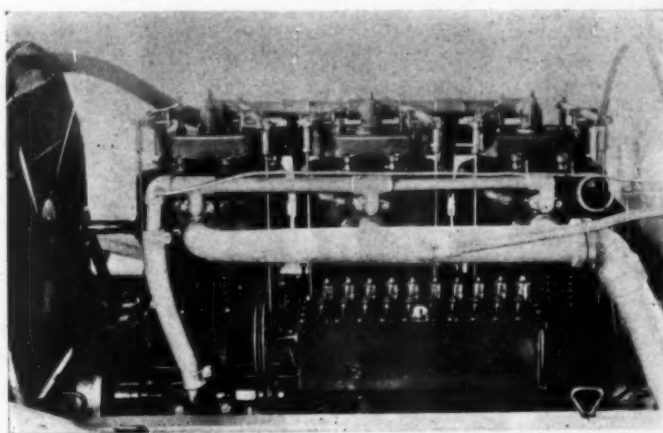
rect to the The motor four inches

main bearings. dimensions are bore by four and one-half inches stroke, and the motor is given the extremely moderate rating of 35 horsepower at 1,000 r. p. m. Cooling is by means of a Mercedes type honeycomb radiator supplied by a gear-driven centrifugal pump, supplemented by a fan.

The first step in the transmission of the power consists of a multiple-disk clutch, consisting of alternate plates of copper and steel, while the change-speed gear is of the sliding type with selective operation, providing the usual three speeds forward and reverse. Final drive is by propeller shaft to a Timken roller-bearing floating live axle. The front axle is also a Timken product of the I-beam type, while the suspension consists of Krupp oil-tempered crucible-steel springs of liberal dimensions and of a semi-elliptic type, the pressed-steel frame being raised in the rear in accordance with current foreign practice. The wheelbase of the touring car is 130 inches, while that of the runabout is 113 inches, the tread being standard in both cases and the tire equipment is also the same, consisting of 36 by 3 1-2-inch front and 4 1-2-inch rear. Two sets of self-equalizing brakes are centered in drums on the driving wheels. A Gemmer self-locking steering gear is fitted, with the usual type of control. The car has been specially designed throughout and is in no sense an assembled production, Mr. Leibert having been associated with a leading German builder for some years. He has devoted great pains to every detail of construction and material in evolving the design of this new six-cylinder type, considering it his masterpiece, and it is confidently expected that it will be heard from on the track and the road during the coming season.



CHASSIS OF THE D. L. G. AS SEEN FROM TOP AND THE REAR.



EXHAUST SIDE OF THE D. L. G. SIX-CYLINDER MOTOR.

TRANSFORMATIONS IN CENTRAL NEW YORK.

By ROBERT BRUCE.

Automobile tourists are generally aware of the far-reaching road changes now in process in central and western New York, amounting for 1907 to a vast amount of new construction, the present effect of which is to greatly inconvenience the tourist. Probably the largest single contracts let in New York State up to this time, under the present highway law, have to do with portions of the main line between Albany and Rochester, closing several important stretches which, unless the tourist knows something about them in the beginning, are almost sufficient to become a puzzling barrier to his trip. The general situation, especially between Utica and Syracuse, is covered with thoroughness in the New York State section of the Blue Book up to the time of going to press of that volume; but even in the past three months great changes have taken place.

During the past week the editor of the Blue Book has traveled over the entire country between Syracuse, Utica and Schenectady, and sends *THE AUTOMOBILE* this information. At the present time the line between Syracuse and Oneida is open; this is as yet not much changed over 1906. From Oneida Castle east there are on the western end several miles of old road untouched; this is followed by a complete stretch of new State road open to the village of Kirkland. The single exception is one short stretch where work is now in process, but a fairly good emergency road is in use around it, in plain sight, therefore presenting no difficulties. The portion from Kirkland to New Hartford and Utica is closed at the present time. The best way to get around this is to continue east a short distance from Kirkland on the Seneca Turnpike to "Middle Settlement 4 Corners," thence through New York Mills and Yorkville.

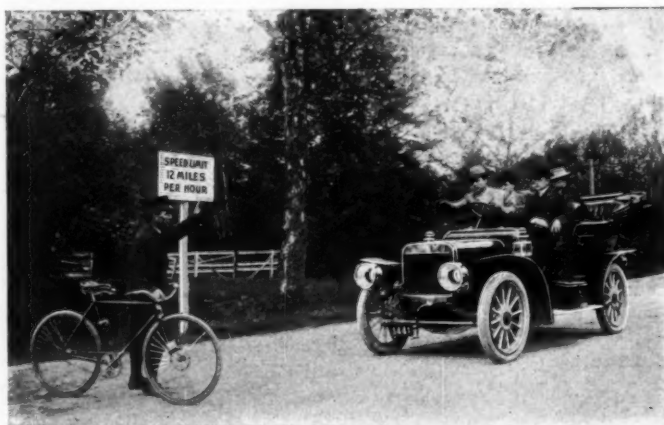
From Utica east, what was formerly the best route on the north side of the Mohawk river from Utica through Deerfield to Herkimer and Little Falls, is entirely closed, and it is necessary to take either Rutger street or Bleecker street, through the Masonic Home grounds, turning over the West Shore railroad and the Erie canal, following the poorer road along the south side of the Mohawk river through Frankfort and Ilion to Mohawk. As the road between Herkimer and Little Falls is also closed, one making the eastbound trip from Utica should not continue through the village of Mohawk into Herkimer, as it will only lead to the necessity of turning back, or else plunging through work in process. However, if the tourist will watch for the small depot of the West Shore railroad at Mohawk, turning 90° right, immediately after passing the depot, (and before reaching the bridge over the canal), a narrow but passable road will be found which, with many turns, leads along the lower side of the river to Little Falls, crossing through the factory district and over the railroad into the center of that city.

Here is possibly the most important point on the main line for the tourist to know. Having run into Little Falls, one may travel the usual route on the north side of the river for about two miles only, coming to a frail suspension bridge crossing the Mohawk river at this point. Beyond the suspension bridge the usual route is absolutely closed by order of the State Engineer, a large sign to that effect being posted near the entrance to the bridge. It is important to cross this bridge and also the canal (both requiring care), turning left immediately beyond, running along the lower side from this point to Fort Plain. The route is not difficult to find or follow, but the road is narrow and horses less accustomed to automobiles than those usually met on the north side route are likely to be met. There are also three or four atrocious railroad crossings, requiring extreme care, especially where the West Shore is crossed on a down grade.

Running into Fort Plain, turn 90° left across the Mohawk river at that point, running up a short distance from the bridge to the main highway on the north side at the hamlet of Nelliston. Turning right at this point, the usual route between Utica and Schenectady is resumed, and there is no more difficulty all the way to Schenectady and Albany.

GLEN ECHO DEFIES UNCLE SAM ET ALII.

WASHINGTON, D. C., July 15.—Attorney-General Bonaparte, in fitting and weighty legal language, has rendered his opinion that the little spot on the map called Glen Echo—a suburb of this city—has no jurisdiction whatever over the Conduit road. That the latter is Federal property, and in consequence the high-handed hold-ups and endless fines collected have all been illegal. But Glen Echo is belligerent and after listening to a fiery speech by its boy Mayor, the Town Council not only decided to stand to its guns, but issued a defi by cutting the limit of twelve miles an hour in half. From now on, or at least until the Government puts its thumb on the spot in Maryland, the only safe way for an autoist to pass through it without paying dearly for the privilege will be to get out and push his car, being sure to have the engine stopped while doing so, as the Mayor has been authorized to assess the limit of \$50 in every instance. He cannot push without fear of being punctured from behind by a 44-caliber revolver bullet if he exceeds the speed limit, for the belligerent Marshal Collins, who is in the Mayor's class, as he can only lay claim to having seen twenty-four summers, is reported to have reconsidered his intention to resign for the excitement of "tendin' store" behind the counter in his brother's establishment



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MARSHAL COLLINS MAKING AN ARREST AT GLEN ECHO, MD.

in Philadelphia, and is still on the road, while the supply of ammunition is plentiful. Glen Echo wants to know what the Government is going to do about it, and proposes to enrich the town treasury still further by making the speed limit six miles, and the State of Maryland is backing up its belligerent hamlet. Mayor Garrett and Marshal Collins will fight to the death and the Town Council says ditto whenever they speak, so that it would appear to be the Attorney-General's move. His opinion holds that the laws of the State of Maryland confer no authority on the town's Mayor to impose fines, either for offenses against the municipality or against the State, and that Congress has the exclusive right of jurisdiction over the entire length of the Conduit road and has had ever since its building in 1859.

TIME SAVING TO CATCH A TIME-SERVER.

WILMINGTON, DEL., July 8.—Detective James L. Hawkins, who is connected with the office of Attorney-General Richards, has branched out all of a sudden as an automobilist, and a genuine one at that. A few days ago he received a telephone message asking him to go quickly to Claymont, six miles away, that one man was assaulting another and serious trouble was feared. The detective called up a relative who has an automobile. When he got to Claymont he found the man said to have caused the trouble tied to a tree and brought him back to the city. Only forty minutes was consumed from the time Hawkins left his office until he was back again with his prisoner and the road was not in very good condition either.

DETAILS OF EDGE'S RECORD 24-HOUR RIDE.

LONDON, July 1.—Straightaway after its official opening the new Brooklands track has gained worldwide renown by the 24-hour record ride of S. F. Edge and his Napier car. Prompt to time the green 60-horsepower six-cylinder car glided off the mark with its red and white companions to add interest. This additional feature was a lately formed idea to test the possibilities of three sister cars on which change of drivers was made every three hours.

A sixty-an-hour pace was reached the first lap of the three-mile course and with monotonous regularity the green car set up a steady speed of seventy miles an hour, the other contestants trailing close in the rear. These companion cars were there to race and not to give pace to their principal, added interest being lent by the fact that these cars represented the rival interests of the works and the London agency. Soon after the start Edge began to draw away and just inside the first hour he lapped both the others. The close of the first hour showed a 70-mile total for Edge and 66 3-4 miles to the credit of the others who stuck within a few yards of each other for the first few hours; in fact, at the 100-mile mark the white car led its rival by but two seconds. Two hours from the start Edge stopped a few seconds for water and again later on for a change of tires, though but little time was lost.

Weird Scene Through the Night Hours.

As night came on the track was brilliantly lit up with big Well's lights, a row of small red lamps making the inner edge of the track. It had been intended to utilize big acetylene lamps on the competing cars, but practice spins showed this course to be unnecessary. Large tanks had been provided to hold sufficient gasoline for twelve hours run, so that not much time was wasted in refilling. Somewhat remarkable was the freedom from mechanical troubles, not a single stoppage for adjustment being required by the green or white car. The red car experienced hard luck; a heavy jolt over a rough spot at the outside of the track caused breakage of a rear spring and the twenty-five minutes delay thus occasioned was never recovered.

Right through the run Edge's green car showed itself superior in speed to its companions till at the end of the proceedings it had gained a lead of well over forty miles from its nearest rival. Contrary to anticipation no apparent reduction in speed was marked toward the close of the run, and in his twenty-fourth hour Edge covered 62 1-2 miles with no apparent effort.

How the Miles Were Reeled Off.

The distances accomplished by Edge in the successive hours are given herewith:

	Miles.	Yards.	Total Miles.	Yards.	Average Miles per Hour.
1st hour	70	130	70	130	70
2d hour	70	1,190	140	1,320	70
3d hour	66	1,240	207	800	64
4th hour	64	360	271	1,160	67
5th hour	71	190	342	1,350	71
6th hour	64	470	407	60	65
7th hour	67	300	474	360	67
8th hour	63	750	537	1,210	63
9th hour	71	1,270	609	720	72
10th hour	60	480	670	1,200	60
11th hour	66	1,040	737	480	67
12th hour	62	1,120	799	1,600	63
13th hour	66	490	866	330	66
14th hour	72	150	938	480	72
15th hour	68	1,160	1,006	1,640	69
16th hour	61	521	1,068	400	61
17th hour	71	700	1,139	1,100	71
18th hour	63	1,490	1,203	830	64
19th hour	60	340	1,263	1,190	60
20th hour	64	20	1,327	1,190	64
21st hour	60	1,670	1,390	1,110	61
22d hour	68	790	1,458	130	68
23d hour	61	230	1,519	360	61
24th hour	62	950	1,581	1,310	63

The average for the whole distance equals 65 1-8 miles per hour. Second place was taken by the white car with 1,538 3-4 miles, while the red car covered a total of 1,521 miles, and this in spite of the fact that these two cars were driven by men who were relieved at stated intervals.



JUDGE DILL'S CORBIN PARTY LEAVING FOR MAINE.

TRIO OF CORBINS ON A STRENUOUS TRIP.

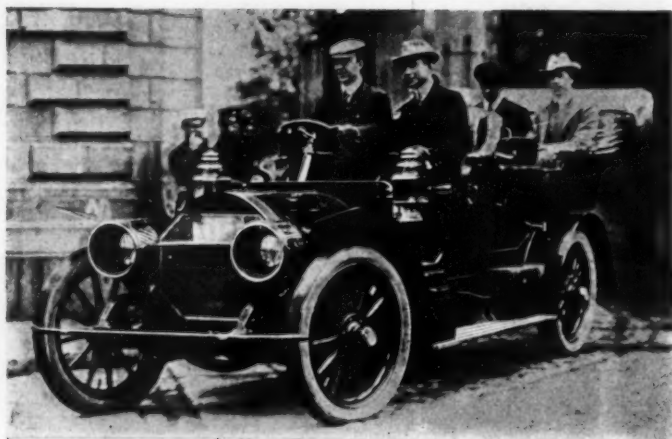
Without any preliminary blare of trumpets or announcement of their going, three Corbin cars left East Orange, N. J., last Thursday bound for what would ordinarily be considered considerable of an endurance run. Judge James B. Dill was at the wheel of the first, Winthrop E. Scarrit, ex-president of the A. C. A., handled the second, while F. W. Darnstaedt, from the Corbin factory, completed the trio, the third car being used principally as a baggage carrier. The guests on the run are Judge Foster of the New York City Court of General Sessions, Judges Reed and Garrison of the Supreme Court of New Jersey, and Mr. Scarrit's two sons. The trip planned is to end at Judge Dill's summer camp at Rangeley Lake and the route is via Saratoga, Lake George and the Adirondacks to Montreal, thence to Quebec and from there down through the famous Chaudiere Valley, thus covering much of the route of last year's A. A. A. tour.

A PREMIER IN AMERICA'S DARKEST EGYPT.

CAIRO, ILL., July 15.—The rest of the country is probably not aware that this part of the State of Illinois is locally known as Egypt from the fact that it lies between the Mississippi and the Ohio rivers and is consequently under water for the most part. As a result, automobiling is not an ideal pastime there, but still there are a number of cars in the town situated on America's Nile and the accompanying photograph depicts one of them—a Premier 24, owned and driven by Leo McDaniell, who, together with a number of fellow autoists, placed their cars on a river boat and shipped them to New Madrid, Mo., recently, to attend a meeting of the Southeastern Missouri Drummers' Association. Automobile races were part of the fun and the Premier carried off the honors, besides getting a prize as the handsomest automobile.



THE PREMIER THAT HELPED ENTERTAIN THE ROAD KNIGHTS.



DUKE OF ABRUZZI IN A BOSTONIAN'S LOCOMOBILE.

On the occasion of his visit to the Hub, the Duke of Abruzzi, well known for his fame as an explorer, and who came over to represent the Italian Government at the recent opening of the Jamestown Exposition, took advantage of an invitation to see Boston from the front seat of a Locomobile.

READING TO HOLD AN AUTOMOBILE CARNIVAL.

READING, PA., July 15.—Friday, July 26, has been set as the date of the automobile carnival and races to be held in this city under the auspices of the Reading Automobile Racing Association. The programme leads off with the race meet, which will take place under the sanction of the American Automobile Association at the Berks County fair ground, the track of which will be banked for the occasion. There will be six races in all, of two, three, five and ten miles, for cars of different classes, in addition to an obstacle race, which opens the programme, followed by a motorcycle race, while event No. 6 is a one-mile gymkhana race in which the driver must get out at the quarter, put on a pair of goggles, stopping again at the half to take a duster out of a suit case, reclosing the latter, and again coming to a halt to take on two passengers with parasols at the three-quarter mark. The races will be preceded by a parade and street carnival in the morning, in which prizes have been offered for the most beautifully decorated car, as well as the most grotesque ornamentation, and also for the neatest and best equipped car. To close the day's programme a ride will be given a number of city's poor children.

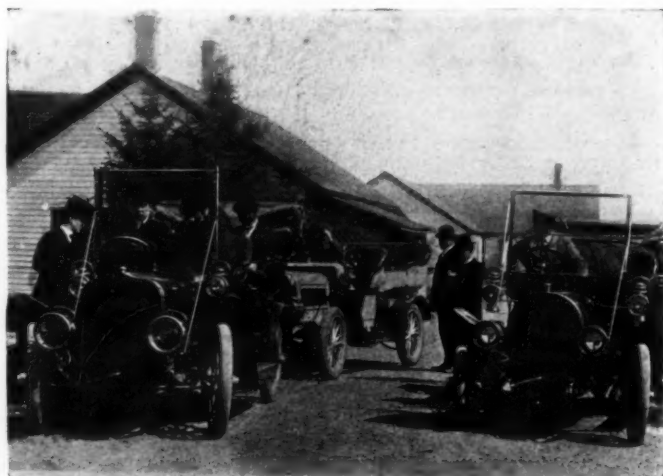


THE AUTOCAR TEAM AND ITS LUCKY MASCOT.

Not all the victories of the Autocar this year have been won by the cars turned out at the factory at Ardmore, Pa. The men who make the Autocars have been even more victorious, for their well-organized baseball team has not lost a game, though it has been in the field all season. The mascot on the radiator is Norman Smith, Jr., son of the second baseman.

PEORIA COMPANY ASKS AN EXTENSION.

PEORIA, ILL., July 15.—Finding itself unable to meet its obligations promptly, the St. Louis Motor Car Company called a meeting of its creditors last week, with a view to making some arrangements by which it can continue business. Jesse French is president of the company and the principal indebtedness of the firm consists of \$70,000 borrowed money, for which he is security, while the other creditors' claims—mostly for materials supplied, total about \$30,000. Mr. French explained to the creditors that there were about thirty cars in the course of construction, and that if they can be completed sufficient can be realized on them to satisfy the smaller creditors, at the same time offering to hold back his own claims in order to permit the company to reorganize and try to get on its feet. He accordingly suggested that a committee be appointed to run the works for the length of time necessary to complete the cars now in process, with the alternative of throwing the company into bankruptcy. It is probable that his suggestion will be acted upon and a committee appointed to take charge of the works. The plant was started here in 1905 and has employed about 100 men ever since. The president of the concern is a well-known financier with headquarters in St. Louis, while his son, Jesse French, Jr., is vice-president and manages the concern.



PRINCE FUSHIMI'S POPE TOLEDO ACROSS THE BORDER.

While in Canada last month, Prince Fushimi, who is a member of the Japanese Imperial family and a member of the Japanese Supreme Council of War, utilized a Pope-Toledo touring car to make a number of side trips in many parts of the Dominion from the private train in which he constantly traveled.

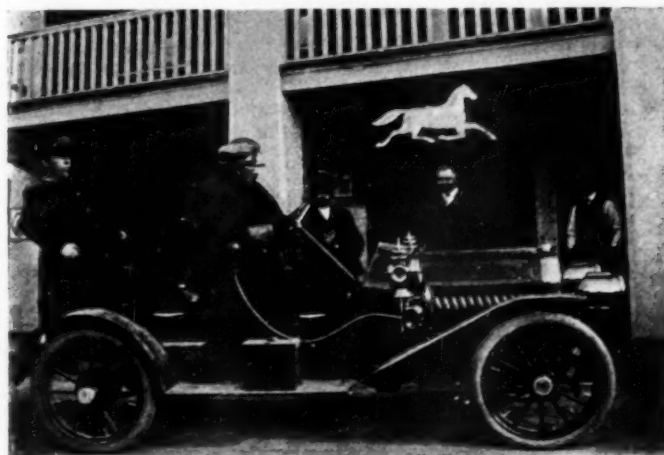
THINGS INTERESTING FROM TIREVILLE.

AKRON, O., July 15.—An interesting competition has been on between the Diamond and Goodrich companies to lead in furnishing the tires for the machines in the Glidden tour. The figures as given out by the Goodrich company are as follows: Official count shows a total of 72 cars, of which 37 are equipped with Goodrich tires, 30 with Diamond tires, 3 with Dunlop, 1 with Fisk and 1 with Morgan & Wright. The Diamond company's figures are as follows: Out of 78 cars, 35 are equipped with Diamond tires, 35 with Goodrich and 8 scattering.

The annual convention of the traveling salesmen of the Firestone Tire and Rubber Company was held this week, closing Tuesday night. Twenty-three of the salesmen were present, and all went to Cleveland to see the start of the Glidden tourists. The company treated their men royally while here, entertaining them at the Country Club. Business meetings were held at the offices, President H. S. Firestone presiding. It was reported at this meeting that the business of the company increased considerably the past year, the sales having been greater in the past twelve months than in the whole history of the concern previous to that, which is saying a great deal.

FINAL DECISION IN ACETYLENE BURNER CASE.

CHATTANOOGA, TENN., July 15.—After having litigated the matter for six years, a decision declaring the Dolan patent, No. 589,342, granted August 31, 1897, invalid, has just been handed down in favor of the American Lava Company and Paul J. Kreusi, of this city, by the Circuit Court of Appeals. There were two actions, the first having as complainants D. M. Steward, M. Kirchberger, B. Von Schwarz, P. Von Frays and Charles W. Iden, while in the second D. M. Steward figured as the complainant alone. The patent covered an air-enveloping acetylene gas burner of the type now in universal use, and the contention was that it was basic and no burner would work on this gas without carbonizing unless made according to its principles. When first tried, Judge Clark, sitting in the U. S. Circuit Court, declared against the defendants and caused a permanent injunction to issue, restraining them from further manufacture of the burners in question, including some seven different types. Shortly after this the American Lava Company brought out a different type, against which the second action was instituted, and a second injunction was granted against the defendants and later suspended on the filing of bonds to the extent of \$6,000 by the defendants. The Circuit Court of Appeals has now ended the litigation by declaring the patent invalid and reversing both of Judge Clark's decisions. The decision was based on the ground that the construction had been anticipated by Bullier in France.



THE RECORD-BREAKING MORA AT THE FAMOUS WHITE HORSE INN.

S. H. Mora, president of the Mora Motor Car Company, at the wheel; T. W. Martin, vice-president, beside him, and C. L. Crothers, in the Mora Racytype that has created a new world's record by covering a total of 3,219 miles, the entire distance being made under sealed bonnet conditions.

AMERICAN WINS FIFTY-MILE RACE AT ST. LOUIS.

Later information from St. Louis is to the effect that at the Fourth of July race meet held in that city, the American car was victorious in the 50-mile event for touring cars, which was a feature of the day. In printing the summaries of the Lowell, Mass., in last week's issue of *THE AUTOMOBILE*, a seeming injustice was also done the same car by crediting the Stanley steamer as being the winner of the mile free-for-all event in :45 1-4, whereas the honor should have been given to W. A. Fredericks, driving the American Roadster, who did the distance in :45 flat, making the best time of the day, as stated in the body of the report.

CHARGES AGAINST OLDFIELD DISMISSED.

PORTLAND, ORE., July 10.—Barney Oldfield, who was recently arrested here on a charge of obtaining money under false pretenses by making use of the name of the local club to boom a race meet without the former's sanction, has made a written statement of the circumstances surrounding his connection with the affair which was perfectly satisfactory to the complainant and the charges have accordingly been withdrawn.



PANAMA'S RULER AND FAMILY IN A STEARNS CAR

While on his visit to New York, President Amador of Panama and his family were whisked about the metropolis in a big Stearns touring car and were highly delighted with the new method of locomotion of which Panama can boast but few doubtful examples in the shape of some cars of ancient vintage.

BELGIUM'S ROUTE ROYALE OPENED.

OSTEND, BELGIUM, July 15.—The Route Royale, Ostend's special automobile track, was inaugurated to-day by the holding of a race meet. Unfortunately but few heavy machines were present, so that no phenomenal performances took place, but the new road which has been especially designed for automobile speeding has a remarkably perfect surface, which is considered to surpass that of the new Brooklands track. And it has all the disadvantages of the latter in superlative degree, from the spectator's standpoint, for the highest speed of the most powerful touring cars looked commonplace and only the Darracq and Mercedes saved the meet from falling flat. The distance is five kilometers in opposite directions—that is, with and against the wind—and as the latter was very strong only the big cars made a showing against it. Rigal in a Darracq made the fastest time in 2:28 with the wind and 2:38 on the opposite stretch, with Baron de Caters next in a Mercedes, which did it in 2:44 and 2:49.

AMERICAN CARS TO BE SHOWN IN DENMARK.

COPENHAGEN, July 5.—Among the manufacturers of American cars who have already signified their intention of exhibiting at the show to be held here in the fall are the makers of the Ford, Reo and Rambler machines, and they have planned their exhibits on a scale which will place them on an equal footing with the English, French and German makers who will be here to bid for business in full force, as there is no home industry.



A LITTLE CADILLAC IN THE POSTAL SERVICE IN HAWAII.

Wherever they are met with, the little single-cylinder Cadillacs are found doing strenuous and exacting duty, as witness the one shown in the photograph, which with 1,000 pounds of mail sacks and a post-office inspector and additional passenger negotiates the mountainous roads of the island.

BRIEF ITEMS OF NEWS AND TRADE MISCELLANY

The Itala Import Company, of New York City, reports the arrival and sale of its first six-cylinder model.

The Standard Automobile Renting Company, of New York City, has just been organized to carry on the business of renting touring cars, and has placed an order for three Lozier 40-horsepower cars.

The F. C. Stanford Manufacturing Company, Dewey Court, Bridgeport, Conn., are now making a specialty of automobile repairs that require welding, as they have unusual facilities for work of this class, in addition to the manufacture of automobile parts and sheet metal work, of which they turn out large quantities.

A contention of the American Motor Car Manufacturers' Association is that the medium-priced car is the best seller, and offers as proof that there are 7,500 Fords on the road. The association has long advised its members to build at least one model that will sell at a medium price, and points out the popularity of the Ford, Maxwell, Mitchell, Reo and others as conclusive evidence.

Ford cars are cutting a wide swath the world over, for right upon the heels of their meritorious showing in the Scottish reliability trials comes the announcement that both the four-cylinder runabout and the six-cylinder touring car made perfect scores in the Irish event of the same nature. The runabout made the fastest time in its class in the hill-climb, and received a certificate testifying to a "high-gear run" during the first two days.

Recognizing that the demand for high-class autoing apparel was not being more than half met at the Hub, the William H. Richardson Company, 388 Washington street, Boston, has opened a motor apparel department, which, as they state, is "complete to the smallest essential." They will carry a large stock of everything for the autoist, including imported lines, among which Burberry's English motor garments figure largely, while chauffeur's outfits will also be made to order.

Five consecutive scores in five consecutive starts in as many weeks is claimed by the Winton Motor Carriage Company as a record for reliability. The fifth score was made by a Winton Model M in the endurance run of the Bay State Automobile Association, Boston to Keene, N. H., and return, July 6. Thomas F. Walsh, the millionaire mine owner of Denver and Washington, has placed his order for a Winton Model M limousine, finished in royal blue.

The J. S. Bretz Company, Times Building, New York, American representatives of Fitchel & Sachs, has received advices from England that the Napier car, driven 1,581 miles in 24 hours on the new Brooklands track, at Weybridge, England, June 28-29, was mounted on F. & S. bearings. The Bretz Company has already received advices that the winners in the recent Herkomer tour in Germany, the German Emperor's cup race, the Grand Prix, the Targa Florio, the Graphic trophy and the Swiss heavy-wagon competition were all mounted on F. & S. annular ball bearings.

Extensive investigation is being made by the Hess-Bright Manufacturing Com-

pany, Philadelphia, Pa., to ascertain exactly how much wear occurs in a properly made ball-bearing after long use, and every opportunity to examine the bearings of cars that made considerable mileage is availed of for this purpose. The ball-bearing chankshaft of a Stevens-Duryea Bix Six, that had seen 8,000 miles' running, was recently examined, and it was found that the endwise play had been increased by amounts varying from 0 to 0.001 inch, while the radial play had been increased by amounts varying from 0 to 0.0001 inch, the original endwise play in new bearings being 0.021 inch and the radial play 0.0002 inch. It is practically impossible to adjust a plain bearing to as fine a point as displayed by these ball-bearings after 8,000 miles' wear.

That it is possible for an electric to travel almost twice as far on a single charge of the battery when operated on the low speed than when run on the high is the result of exhaustive experiments recently made by the Studebaker Bros. Manufacturing Company, South Bend, Ind., with one of their cars of this type. The car used was a Studebaker electric victoria-phaeton, weighing 2,000 pounds, and which had been in daily service for six months prior to the tests. On the first trial the car was operated at its lowest speed over a two-mile course, and ran for twenty-four hours before exhausting the battery, in which time it covered 154 miles. The second trial was made on the second speed, and it covered 135 miles in 15 hours, while on the third speed it traveled 101 miles in eight hours. The final test on the high speed carried it 82 miles in six hours; but, as the car is only rated to cover 40 miles on a charge, it delivered 100 per cent. more mileage on the high speed, and 150 to 285 per cent. in excess of its rating on the lower speeds.

RECENT TRADE REMOVALS.

The Motor Car Equipment Company is now located in its new uptown quarters, at the southwest corner of Fifty-fifth street and Broadway, in the heart of automobile row, which are generally considered to be the finest of their kind in the city, if not in the country. A most complete line of accessories and clothing is carried, including many well-known specialties, of both American and foreign make, for which this company is the exclusive selling agency.

Bag and baggage, Joseph F. Gunther now finds himself on Michigan Avenue, Chicago's famous automobile row, with all the Ramblers, big and little, his can of gasoline and his bottle of lubricating oil, and he is there to stay. The move has not been a sudden one, for during the past two months or more both the new quarters and the old, on Wabash Avenue, have been utilized; while, more than that, the stock of Ramblers has been so completely disposed of that the actual moving consisted of but little more than the migration of the Gunther staff and the transfer of the fixtures.

NEW AGENCIES ESTABLISHED.

Woodworth leather treads and the "Kant-Skid" tire grip have settled down on New York's automobile row, a branch

having been opened recently at 1,662 Broadway, which is in charge of Fred Blumenfeld, who has had considerable experience in tire protectors.

Following out its policy of covering the entire country with a network of facilities, so that no district of importance shall be without them, the Prest-O-Lite Company, of Indianapolis, Ind., will shortly open new charging plants, one of which will be located in Los Angeles to take care of the lower coast trade, while the other will be in Pittsburg, Pa.

The New England Motor Company, of Lowell, Mass., makers of the Rex accumulators, have just opened a branch store at 163 Columbus avenue, Boston, and the same company has provided for its metropolitan interest by opening an office at 25 Broadway, New York City the latter having been found necessary in order to take care of the increased demand in this quarter.

PERSONAL TRADE MENTION.

R. D. Henshaw, who has long been well known to the automobile trade, has just joined the sales forces of the Pope Motor Car Company, and will handle the Pope-Toledo cars in the New England States from now on.

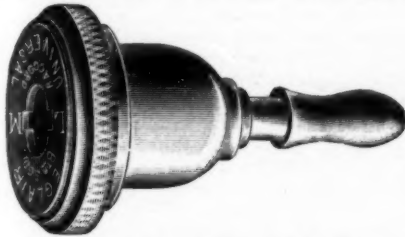
A rumor to the effect that Charles B. Shanks, general sales manager of the Winton Motor Carriage Company, Cleveland, O., had resigned came as news both to the Winton Company and to Mr. Shanks, as it was the first they had heard of it. There was no foundation for the report.

Though not made public at exactly the same time, George H. Strout, sales manager of the Electric Vehicle Company, Hartford, Conn., handed in his resignation, together with President Budlong and Hiram P. Maxim. Mr. Strout is at present on a business trip in the West, and his resignation is to take effect on August 1, after which he will take a short vacation before becoming identified with another automobile factory. He has been identified with the bicycle and automobile industries for the past thirteen years.

Right on the heels of the announcement that Ezra E. Kirk had severed his connection with the Kirk Brothers Automobile Company, of Toledo, O., which he entered after leaving the E. R. Thomas Motor Company last spring, comes the notice that he is already again in harness as western sales manager for the Rainier Company. He will have charge of the territory west of and including Pittsburg and Buffalo, which has heretofore been under the supervision of President John T. Rainier and Vice-President Paul N. Lineberger. The erection of the big plant of the Rainier Company at Saginaw, Mich., has brought with it a largely increased demand for Rainiers in the Middle West, and hereafter Mr. Rainier will divide his time between the factory and the New York office, which will still continue to be headquarters, while Mr. Lineberger will act as eastern sales manager. There are few better known figures in the automobile world to-day than Mr. Kirk, who, like so many others in the field, is a graduate of bicycling days. He enters upon his new duties at once, and will have headquarters at Saginaw.

INFORMATION FOR AUTO USERS.

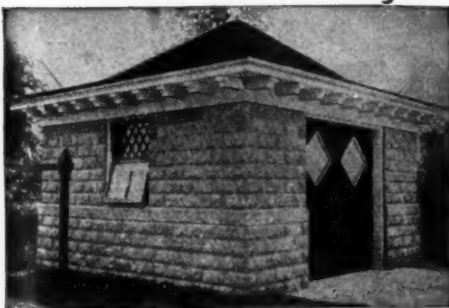
"Eclair" Pump Connection.—One of the many imported specialties of merit handled by Leon Rubay, 1697 Broadway, New York City, is the Eclair universal pump connection, a French novelty designed to lighten the task of tire inflation. It is attached to the tire simply by pressing it on, and removed by pulling it off. The accompanying illustration shows the joint complete, which consists of a compression chamber, hermetically



THE ECLAIR UNIVERSAL CONNECTION.

closed by a rubber washer of special construction, held in place by a metal disk which screws into a removable ring placed over the compression chamber, and is drawn up tightly against a flange by means of the metal disk, every part of the connection being easily removable. Exhaustive tests have shown that the washer will stand between 4,000 and 5,000 inflations before requiring renewal, which may be made in less than a minute. The joint is attached to the pump in the ordinary manner and sells for a dollar complete.

National Portable Houses.—This is a line of portable house in the manufacture and design of which the makers have paid particular attention to the needs of the autoist, their construction being especially well suited for both small and medium-sized garages. Though designed to be portable, and, as the name suggests, shipped in sections and thus set up, there is no limit either to the size of the house that can be built, nor to the variation of architectural detail that may be supplied according to the requirements of the purchaser. Thus the doors may be glazed or solid, the side walls may have any number of win-

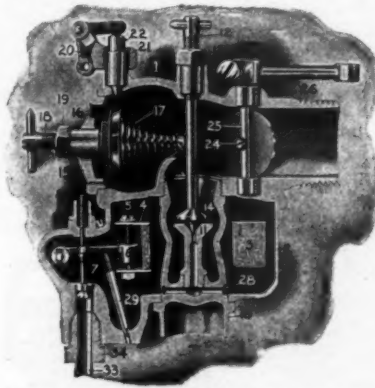


ATTRACTIVE TYPE OF PORTABLE GARAGE.

dows desired, and the floor may be of hardwood or cement, the latter always being recommended for garage purposes. When the construction itself is concerned, this may be of V-jointed matched siding, in steel representing pressed brick or stone, or of fireproof composite construction. There is also a wide range of choice of roofing materials, such as wood shingles, waterproof canvas duck,

asbestos, steel shingles, plain sheet steel, tin, etc. Where floors are required, as in cottages, temporary office buildings, and the like, this is of narrow, 7-8-inch pine, properly dressed and matched, and laid on suitable joists. The sections are keyed into one another on an interchangeable system, and when erected are as rigid and permanent as the ordinary form of built-up construction. They are made by the National Construction Company, 604 Morgan Building, Buffalo, N. Y.

The New Heitger Carbureter.—After a number of years of study, devoted exclusively to the problem of carburetion on the automobile and the motor boat, F. H. Heitger, of the Heitger Carbureter Company, 205-207 West South Street, Indianapolis, Ind., has just placed a new carbureter on the market, for automobile, marine and stationary use, for which much is claimed. It is of the annular float type, with the jet centrally placed and the body of the carbureter and the mixing chamber directly above it. The carbureter outlet, governed by a butterfly type of valve, is located at one side of this chamber, and the spring-controlled



VERTICAL SECTION OF HEITGER CARBURETER.

auxiliary air valve at the other. The small plunger lever for facilitating a start is placed at the same side as the auxiliary air valve, while the needle valve is at the opposite side on top, so that all adjustments are in plain view and may be readily made. The Heitger carbureter is also designed to be easily installed on any make of car, as the throttle can be made to open and close from either direction and the lever can also be operated from any direction, while the gasoline feed opening is provided with a swivel joint.

Hercules Shock Absorbers.—In the present condition of the streets of San Francisco, which is in the throes of rebuilding operations, there is an active demand for shock absorbers, and the Hercules, made by the Hercules Auto Specialty Manufacturing Company, 115 Dearborn street, Chicago, which has but recently introduced its device on the Coast, finds that it is meeting with unusual favor there. Another instance of its success is to be found in the large order for Hercules shock absorbers recently placed by the president of an important jobbing house, who first gave the device a thorough try-out on his own car before setting the seal of approval on it in the shape of a substantial order. While similar in principle to many other shock absorbers, in that it interposes a

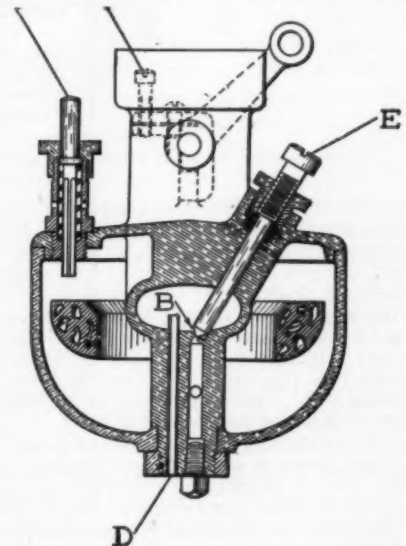
frictional resistance to the excessive play of the springs, it embodies special exclusive features, chief among which is the auxiliary cushion spring, which gives the car's springs plenty of play on smooth roads up to 50 per cent. of their



THE HERCULES SHOCK ABSORBER, COMPLETE.

movement, before the friction device comes into action so that the car does not ride stiff and uncomfortably. The accompanying illustration shows the device complete, ready for attachment.

Holley Carbureters for 1908.—It is a matter of common knowledge that the auxiliary valve of the average carbureter, on which feature it is entirely dependent for its automatic action in supplying a mixture that will be as nearly uniform as possible regardless of the speed of the motor, does not always fulfill its functions properly. The differences in air pressure and the amount of surface acted upon are so small that it is difficult to keep the spring properly adjusted for all conditions of working, so that it comes somewhat as a surprise to note that the 1908 Holley is announced as "an automatic carbureter without moving parts." To accomplish this the principle of the Venturi tube has been employed with excellent results. The Venturi tube is what may be termed a double bell-mouthed pipe, i. e., large at both ends and constrict-



SIMPLICITY OF THE NEW HOLLEY CARBURETER.

ed in the center, and it produces the anomalous action of discharging a liquid or gas with a greater velocity through the smallest section of the tube than that due to the impelling head alone—usually illustrated in lecture room experiments by using

two buckets of water, one with a plain hole in the bottom and the other fitted with one of these tubes the smallest section of which is the same as that of the hole in the other bucket. The bucket fitted with the tube will empty itself in half the time required by its duplicate. Referring to the sectional illustrations of the new carbureter presented herewith, the air enters at A, passing downward and up through a U-shaped tube, constricted at its lowest point; at the bottom of the U is the gasoline inlet B, regulated by the usual needle valve, while the mixture passes through a butterfly throttle to the motor at C. The float chamber surrounds the lower end of the U, this constituting a Venturi tube of special form, allowing a very high air velocity to be obtained at B by avoiding the throttling effect due to the usual irregular constricting arrangements. The float is annular and controls the fuel supply in the usual manner, but the gasoline level in the chamber instead of being lower as customary is about one-eighth-inch higher, so that it is not necessary to lift the gasoline by means of a vacuum as ordinarily done. At low speeds there is thus always a small pool of gasoline in the bottom of the U and mixture for this service is obtained by surface evaporation, the pool gradually disappearing before the air current as the speed increases, being replaced by the usual spray at very high speeds.

Steward's Dolan Acetylene Burner.—The production of a brilliant flat flame by one jet of gas through one opening briefly

this work was undertaken by Clarence S. Steward, who after several months study and experiment, succeeded in perfecting machines, which are now in operation, the company having contracted with the inventors for the exclusive right to manufacture the new burner. The results of tests made by the Department of Physics of Columbia



FLAME PRODUCED BY STEWARD'S DOLAN BURNER.

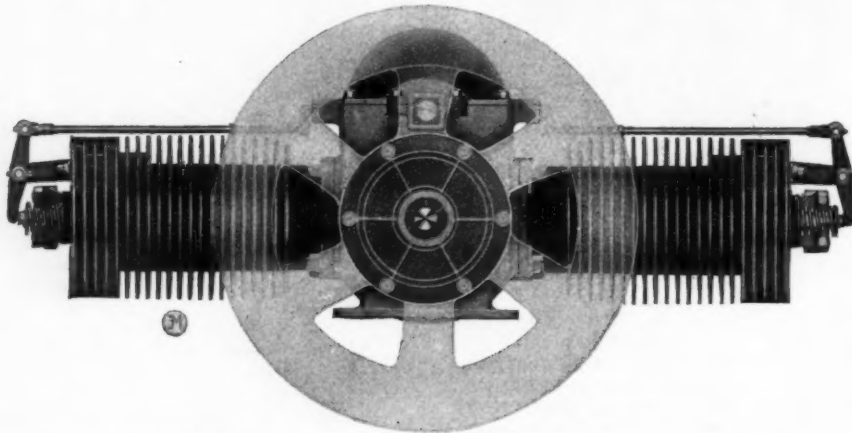
University show that the Steward's Dolan burner also has the great advantage of producing a greater amount of light with gas than the old type, giving an actual candle power of 35.6 on a consumption of .88 of

a cubic foot, or 40.5 candle power to the cubic foot, as against but .33 and 33.1 in the case of some English and German burners that were submitted to the photometric tests at the same time.

Two New Reeves Motors.—The Reeves Pulley Company, Columbus, Indiana, has recently turned its attention to the manufacture of two new types of water and air-cooled motors for commercial vehicle use and reports an excellent demand for them for 1908 deliveries. Model L is a 4 by 4 inch, four-cylinder water-cooled motor, rated at 22-24 horsepower. It is built throughout of the best obtainable materials, while the workmanship is of a grade usually associated with exclusive private designs rather than the commercial motor. All parts are made on carefully prepared jigs and templates, making them interchangeable, so that replacements may be promptly procured, and at reasonable prices. The crankcase is all aluminum, the upper half carrying the bearings and the lower acting merely as an oil pan, thus making it readily removable without disturbing any part of the engine. The crankshaft is turned from a solid hammered billet of specially tempered steel and is finished by grinding.

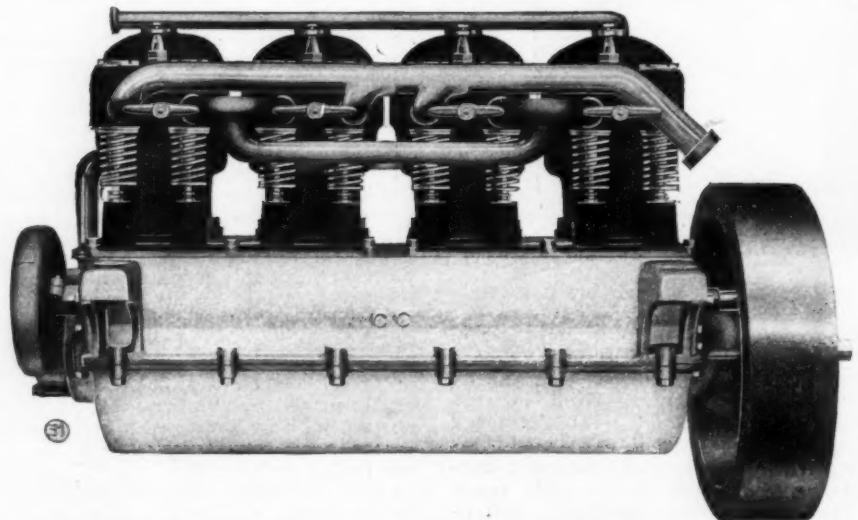
The bearings are all interchangeable die-cast bushings, made of special bearing alloy and hand-scraped to a true running surface. The pistons are of gray cast-iron, accurately turned and ground to fit, and are provided with four rings. The valves are drop-forged in one piece and ground; all are on the same side, actuated from one camshaft. The water jacket not only provides an ample quantity of water where most needed, but has also been designed to deaden the noise of the valves.

Model N is a double opposed 4 by 4-inch, 8-10 horsepower air-cooled motor, the crankcase of which is made of iron. The valves are 75 per cent. nickel steel, ground into cast iron interchangeable cages, which are removable. The valve lifters are case-hardened steel and are provided with a timing adjustment on the pushrods. The flywheel acts as the only fan necessary. In other respects the same painstaking care in construction and the same high grade materials are employed as in the Model L. This motor is made to run in either direction and may be mounted in any position on the car.



NEW MODEL N, 10-HORSEPOWER REEVES HORIZONTAL OPPOSED AIR-COOLED MOTOR.

tells the story of this new acetylene burner, which would appear to be destined to revolutionize practice in this field. Among its most obvious advantages over the present type of forked burner are its lack of fine orifices to clog up and the absence of necessity for having two impinging jets in proper alignment because it is likewise minus this feature of the current form in general use. This new burner is the invention of Edward J. Dolan and M. J. Tracy, of Philadelphia—the first-named being a pioneer inventor of acetylene burners, the type now in practically universal use having been brought out by him in 1897. After completing the invention of this new and improved form, it was found an equally difficult task to devise machinery to make its manufacture on a commercial scale possible. It took the inventors several years of patient work to turn out a few specimens properly by hand, and they were submitted to the D. M. Stewart Manufacturing Company, Chattanooga, Tenn., probably the largest makers in this line in the country. The task of evolving machinery to perform



REEVES PULLEY COMPANY'S NEW 24-HORSEPOWER WATER-COOLED MOTOR, MODEL L.